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A GUIDE TO PHYSICAL RECORD KEEPING SYSTEMS FOR ALBERTA FARMERS

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Alberta

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FOREWORD

Farmers need all the facts and figures they can get to improve their decision-making efficiency and reduce the cost of production on their farm. How successfully and profitably a manager will adjust his operation in the years ahead will depend to a large extent on the quality of his decisions. With today's farming requiring large capital investments and well-managed cashflows, mistakes could have serious financial consequences.

Each farm business is unique and has its own characteristic conditions affecting the performance of crop and livestock production, which in turn will reflect on the overall profitability of the farm. Therefore, it is often less than adequate to rely on "average" data or "good" guesses when managing the operation. Consequently, there is no real substitute for knowing the actual cost of production and profitability of individual enterprises. Financial, as well as physical records, have to be kept and analyzed.

This publication discusses a variety of record keeping systems which are currently available to record physical data occurring in many different farm enterprises. Generally, a record system can be as basic or elaborate as a farmer want it to be. The actual format will depend on the amount and type of information required, as well as on a farmer's willingness to keep the record and pay for the use of a particular system, if required. The Alberta Department of Agriculture does not endorse any particular commercial method.

J. Wilson Loree
Branch Head
Farm Business Management Branch

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NOTE: Costs quoted in the publication are only an indication, and are subject to change.

INTRODUCTION

Management has been referred to as the science and art of adjusting. The past number of years have seen a series of major events influencing a farmer's life, including the Grain Embargo and the manifold increase in crude oil prices, high interest rates, and other inflationary pressures. In any likelihood the years ahead will also bring their share of surprises. How successful a farm manager can adjust to these changes will depend to a large extent on the soundness of his decision making. With the present high capital investments and high cashflow requirements of a farm business, mistakes could have serious financial repercussions.

Farmers usually make widespread use of rules of thumb and average or representative data when working on their production plans. They usually rely on production guidelines that someone else has deemed average. Even though many of these guidelines have been carefully selected from on-farm situations, farmers should still consider the use of them carefully.

Average, group, or consensus research data provide a level of performance against which a farmer can compare his own performance, or set a goal that he would like to reach or surpass in a given amount of time. Often this data is used to estimate or calculate the cost of producing such things as a bushel of barley or a weaner pig. For somebody who is considering an enterprise or who is starting to produce new goods, this data is quite useful. For established enterprises to rely on ready-made criteria can lead to management mistakes.

Many factors influence such things as labor use, machinery cost per tilled acre, and feed cost per livestock product produced. The specific crops grown, the extent of summerfallowing, the production practices followed (for example, substituting chemicals for mechanized tillage), the amount of reseeding, if necessary, are all factors which will affect labor use. How well a farm's machinery complement fits the tilled acreage will influence the cost of raising a crop. Livestock producers have similar standards against which to measure their performance. For example:

(a) non-feed costs per unit of livestock production sold

(b) livestock returns per $100 feed fed

As both measures deal with the cost structure of the livestock enterprise, knowledge of variations in them is essential to realize a profit from raising livestock or reducing losses during adverse times. Therefore, for sound and efficient management, production records are a valuable tool in a successful farm operation; but, often, a tool that is not used to its full potential.

Production records give the physical performance of crop and livestock production. The detail in which they are kept should be a function of their intended use. There is considerable time and effort involved in keeping accurate records, like many other chores on a farm, additional effort should be put into keeping them only as long as the expected benefits outweigh the cost in either time or money of producing the information. Records that are worth the most are the ones that are used the most. A farmer can get considerable information relating to production as well

as overall productivity of livestock and crop production by consulting his inventory, and income and expense accounts if these are kept in sufficient detail.

The key to the success of any good record system is the daily recording of all essential information. The daily recording should be a documentation of the important things that happened that day. It should be recorded in a format that allows for rapid easy summarization at frequent intervals.

Therefore, a farm manager must tailor his record keeping system to his own particular needs and circumstances so that it is as simple as possible, but still satisfies all his information requirements. This will allow him or a professional to perform an accurate farm business analysis of the records. Through this phase the farmer gains valuable insight into his business; without it, the record keeping function is little more than accounting for tax purposes.

Therefore, there is no real substitute--a farmer should know the cost structure of his farming operation for sound decision making.

This guide is not necessarily exhaustive. Some of the systems or record books will disappear and new ones will become available. Efforts have been made to have a good sample available for most areas of concern to Alberta farms.

I LIVESTOCK RECORDS

Livestock records including poultry, can be divided into four major categories:

1. mortality
2. breeding
3. production (gallons, eggs, calves, piglets, liveweight gain, etc.)
4. feed

Mortality records give the fitness of the enterprise. Their value is enhanced if the cause of death is recorded. Disease prevention plans for the future can be developed with this type of information. Mortality figures for past years give some idea as to percentage of death loss that can be predicted for the future, and should be included in management decision making. The larger the number of animals involved, the better the estimate will be.

Breeding records are a necessity for purebred producers as they require more detail than commercial producers. Sires must be recorded if pedigrees are desired, or if they are used for rate of gain determination. Records are important to any selection or testing program. Selection without records is guess work--a system which should not be used in modern livestock production.

There are a variety of production records. The birth record is essential in any breeding enterprise. Weaning records can be either by number or weight. For the operator selling feeder animals, weight is an important aspect. In the feedlot, a

beginning and an ending weight are necessary.

Livestock feed records can be kept on individual animals and/or lots, or pens. Feed used may be recorded daily or at any convenient interval. Estimates can be made from single measurements if records are not kept on a regular basis.

With commodity records, milk and eggs, the amount of detail is variable. Information can be collected on a per cow, hen, cage or total enterprise basis. In addition it can be recorded daily, weekly or at any convenient time basis. Summaries and management information can be produced as required or at the end of the production run (e.g. lactation or laying period).

A. - DAIRY FARMS

A key to profitable production is the milk, feed and breeding record system which is the basis for management decisions. Instant access to accurate information will result in more efficient feeding production and genetic improvement.

Few farm animals show a quicker response to change in feed than milk cows. The quality and quantity of their milk, their disease resistance, their reproduction and general health are all affected very rapidly and often dramatically, by the feed they eat.

The record system to be used should be designed to supply the required information quickly, and it should be manageable enough to be kept current. Whatever the herd size, a dairy record system should supply daily information and must have a potential to give a cow's or a herd's history.

Common systems in use are breeding wheels, cowculators, barn charts, calendars, notebooks, DHI (dairy herd improvement) or ROP (record of performance). They give such information as expected heats, calving, breeding and drying-off dates, pounds of milk produced, percentage of butterfat, duration of lactation, etc. The system used should also aid in pinpointing animals that need attention; such as, pregnancy checks and missed heats. The system should include individual animal health records.

Dairy records improve like wine--the longer the herd is tested, the more valuable the records become.

Dairy Herd Improvement Program (DHI)

The DHI program is a specialized computerized dairy management system. It is aimed specifically at upgrading the efficiency of milk production by improving the genetic quality of the herd and identifying the least profitable animals.

DHI records help to:

1. know the milk and butterfat production of each cow
2. identify low producers which should help to increase net returns
3. select heifers
4. feed according to production levels
5. increase the sales value of surplus stock

DHI program has two levels:

Owner Sampler

The herd owner weighs and samples the milk for one day per month per cow. The DHI technician visits the farm, picks up the milk samples and milk weight data, and carries on the calf identification program. The dairyman receives a computerized management report.

Cost - $3.00 per cow per year

Supervised

The DHI technician makes surprise monthly visits to the farm to supervise two consecutive milkings to authenticate production records, and carries on the calf identification program. In

addition to the general DHI information outlined below, the farmer will receive a certificate of production for individual cows.

Cost - $9.00 per cow per year

The computerized management report will contain:

1. calf, cow, sire, dam identification
2. test day milk and butterfat production
3. calving and dry dates
4. milk production per cow
5. cow management memos for - feed (grain recommendations) due to breed dates, dry dates, and calve dates
6. individual cow indexing including Breed Class Average (BCA) for both milk and butterfat, and deviation from herd average
7. herd average expressed as BCA average
8. herd average for the past twelve months (Rolling Herd Average) for both milk and butterfat production
9. calving interval to reflect breeding efficiency
10. percent days in milk
11. feed and milk price information

An individual cow record card will be issued to all producers on DHI to help them keep additional records or transcribed information from the monthly reports. This will give continuous data for each cow. In addition, file signal codes can be attached to help in production and health management. A semi-annual Herd Summary will also be printed.

The Calf Identification Program will eartag each heifer, record its color markings, sire, dam, date of birth and thus supply the farmer with a permanent record of each calf.

DHI makes extensive use of the concept of Breed Class Averages (BCA's). This is an evaluation of the productive ability of a cow adjusted for age and is compared to the breed class performance established for all cows of the same age.

Deviation from the herd average is a comparison of an individual cow's performance with that of the herd under the same conditions. Averages are expressed for two different time periods:

1. herd average for the most recent test
2. herd average for the past twelve months

These figures allow a comparison to other herds. Production averages, or days in milk and calving intervals can be used to detect problems in such areas as genetics and feeding.

For further information contact:

Your local District Agriculturist
Regional Dairy Improvement Technician

Alberta Agriculture
Dairy Division
Provincial Building
5201 - 50th Avenue
P. O. Box 1720
Wetaskiwin, Alberta
T9A 0S7 Telephone: 352-1223

Dairy Record of Performance Program (ROP)

The Dairy ROP program is geared to establish production credentials for each lactation period for individual cows of several dairy breeds. It acts as a basis for the development of intelligent and constructive breeding programs for improving the breeding and market values of dairy cows.

The program is restricted to dairy herds consisting of a minimum of 20 cows of one breed, of which at least 15 must be registered animals. All the registered and grade cows of the breed or breeds owned or which are on the farm must be enrolled in the program. The only exemptions being cows of 12 years or older, or those used as nurse cows having at least one previously recorded lactation, or a cow previously on ROP, but which has lost two or more quarters. Grade cows on test have to be recorded on the National Identification Program (NIP). In general, an ROP lactation certificate will not be issued for a cow that cannot be positively identified within the lactation period.

All cows must have their first milk test within 75 days after calving. If the cow is purchased from a herd on ROP and its lactation is currently recorded, then the cow is eligible for continuing testing providing the period between the last test in the seller's herd and the first test in the purchaser's herd does not exceed 75 days.

The dairy ROP is a supervised recording program which provides the farmer with detailed management information. The program consists of ten tests per herd, which are carried out on the farm and which, depending on the size of the herd, may

require living accommodation for the test supervisor. The test consists of one evening's and one morning's milk being tested on a per cow basis for production and butterfat. Results are sent to Ottawa where the data is processed and results sent back out to the farm.

The owner will receive a certificate of production for each cow containing the following information:

1. cow identification and breed history
2. rolling herd average
3. owner's name and address as per registration certificate
4. production information including-

   age at calving, reported in years and months

   date of calving

   time milked

   305-day production - milk, fat, % fat

   breed class average - milk, fat

   deviation from rolling herd average

   total days in milk

   total lactation production - milk, fat, % fat

On completion of two or more records, the 305-day production and BCA's are totalled and averaged. The total days in milk and lifetime production are also indicated.

Each herd owner will receive an Annual Herd Summary plus a four-year summary, if applicable.

Cost - $100 per herd per year or $4 per cow, whichever is the greater, plus a surcharge of $1 per cow.

The program is administered in Alberta by:

Agriculture Canada
Production and Marketing Branch
Livestock Division
831 Federal Building
9820 - 107 Street
Edmonton, Alberta
T5K 1G2 Telephone: 425-9820

Cowculator

The Cowculator System is marketed by Herdex and is comparatively new on the Canadian market. It is a large bulletin board covered with a replaceable record sheet which is divided into days and months, containing one line per cow. Individual records such as breeding dates, calving dates, and pregnancy checks are marked on the board using different colors. There is sufficient room on each line to add information on health treatment and other data.

The system is geared to the permanent recording of information. Color coding allows the farmer to pick up critical important management data for each cow, and rapidly identify any trends on a per cow basis or within the herd. However, to be of optimum use, it requires individual animal identification. The system is available in different sizes and can be built up in a section format for large herds. It also has provision for optional data where extra information is needed on a per cow basis.

Cost - Herdex Model D65 (up to 65 cows)	$186.00
(up to 100 cows)	240.25
Datafile for 65 cows	86.60
Datafile for 100 cows	111.60
Swingmount frame	58.90
Brackets	10.85

Available in Canada from:

Horst Choring Aids
R. R. #3
Wallenstein, Ontario
N0B 2S0 Telephone: (519) 664-2524

Breeding Wheels

There are several types of breeding wheels used primarily to record reproductive performance data of dairy cows. They vary in size and complexity and the input of information they can handle. One such wheel currently available in Alberta is the DeLaval which can handle up to 150 cows. The board is equipped with magnetized color-coded markers.

Cost - $260 for 75 cows

Available in Alberta from:

DeLaval Dairy Supplies
McPherson & Thom (Alberta Ltd)
428 Moraine Road, N.E.
Calgary, Alberta
T2A 2P2 Telephone: 273-8676

Computerized Systems

The use of computers for livestock management is rapidly developing. Systems are extremely variable, both in sophistication and cost. When considering alternatives one must have a very clear understanding of both the use of the computer and the amount of information to be recorded. It is not a technology to be entered into without considerable thought as the production of individual farm programs may require professional programming.

One such package is currently being marketed by Semex, a Guelph, Ontario, semen exporting company (United Breeders). It is a mini-computer based farm management recording system for use by dairy farmers only. It includes the following:

1. a reproduction package
2. herd health program
3. financial records
4. genetic management package

The basic system will contain enough storage capacity to record all management data for a 100 cow dairy herd. Additional facilities are available for up to 2000 cows.

For further information contact:

Dr. Freeman
Semex (United Breeders)
Guelph, Ontario
Telephone: (519) 821-5060

Germania Computerized Feed and Management System - has two computerized systems. The PCC (Profit Control Centre) and SCOOP (Selective Control of Overall Production).

PCC:

- is a full fledged Management Computer including a wide range of software custom designed for your dairy
- has an easy to understand language
- operator requires no prior computer experience
- adapts and expands as the dairy grows. Can handle any number of cows.
- has different operating programs available, such as:
  - i) cows due to be in heat
  - ii) dry cow report
  - iii) cows due to calf
  - iv) individual milk production report
  - v) history of entire herd

SCOOP:

- automatically feeds each cow individually
- can feed up to 4,000 cows
- a safety system is built directly into the feed station so that it continues to feed cows even if the computer is not working
- four digit cow I.D. to 9999
- feeds two different feed rations at the same time
- invented and made in the United States with U.S. parts

For further information phone: 1-800-356-9627

DeLaval's Ration Master is designed to operate on a 24 hour cycle with a rolling memory feature that keeps figures constantly updated should you want to quickly recall data on a single cow or the whole herd. There is an auxiliary battery power to take over and operate the data bank for 10 - 12 hours if there is a power failure.

The system prints out information once a day and spots out cows to the producer which eat less than 62.5% of their programmed ration. This helps find cows that may be ill and need treatment.

TeSa. Computer/Control System, automatically gathers stores and supplies the printout of all production data. The minicomputer can continuously evaluate data, make the optimum decisions and automatically control milking, feeding and cow control functions that previously have been done manually. The sole function of the operator is to visually check the udder and install the milker unit. With a fully computerized milk barn it is possible for a single milker to milk over 90 average cows per hour with ease and much closer control than with manual operation.

For more information contact:

Technical Industries, Inc.
2711 S.W. Second Avenue
Fort Lauderdale
Florida 33315

Ozland Enterprises, Inc. supplies a record system called "The Dairy Herd Monitor" (DHM). It is a wall-hung unit consisting of a rotating calendar wheel marked off in days for a full year. Management programming is located on the stationary perimeter of the unit. Each cow is represented on the wheel by a color-coded sticker. The calendar wheel is moved ahead one notch each day. As individuals or groups of stickers line up with the various production cycle stages located around the wheel's perimeter, the operator can see at a glance where each cow will be ready to calve by watching her sticker move toward the end of the gestation countdown.

The Dairy Herd Monitor instantly shows:

- when to re-breed each cow after calving
- when to check each cow for pregnancy
- when to perform necessary pre and post calving treatment.

It also automatically:

- improves the management effectiveness by eliminating guesswork and confusion
- cuts down on paperwork by keeping management information visually displayed at all times
- adapts to any size and type of operation where the animals have been identified. Each unit has a capacity of 250 cows.

For further information contact:
Ozland Enterprises, Inc.
R. R. #3
Vicksburg, M.I. 49097

The Manitoba Department of Agriculture has a "color-coded Breeding File System." The main concepts of the file system are:

1) Positive identification of the dairy animal (a file folder is started when a heifer calf is born so that birth date and parentage is known when the animal freshens).

2) Lifetime production records (data is entered after each complete lactation, and this eliminates searching on other sheets for information required).

3) Lifetime diseases and ailment record.

4) If a producer has his animals on N.I.P. he can offer the N.I.P. card to the folder, this eliminates duplicate drawings.

5) If the animal is purebred, the registration sheet can be stored in the folder.

6) The folder can also be used for filing breeding slips.

7) Provisions are made for the producer to keep a complete breeding and mastitis and udder health record.

8) On the reverse side of the folder, a complete progeny record can be kept.

These folders can be stored in a regular three-ring binder, or a personal file box or file drawer.

For further information contact:

Manitoba Department of Agriculture
Marketing and Production Division
Animal Industry Branch
Agricultural Services Complex
University of Manitoba Campus
Winnipeg, Manitoba
R3T 2N2

Canfarm offers a Dairy Feed Service which is designed to blend the feeds of the farmer's choice into a ration that will make the most of this feed and his cattle. The programs big feature is providing a proper feed mix to the herd based on the information given by the producer.

The program also has a separate recommendation for the dry cow ration, calculated to provide her with the necessary ingredients to stay in good shape while growing a calf. This rationing helps to prevent such ailments as the fat cow syndrome, twisted stomachs, milk fever and acetonemia.

Farmers on the program have obtained benefits such as increases in milk yields per cow, more efficient use of feed and mineral, the disappearance or marked reduction of problems such as milk fever and acetonemia, fewer calving and fertility problems and most of all increased profit for the farmer.
For more information contact:

Canfarm
P. O. Box 1024
Guelph, Ontario
N1H 6N1
Telephone: (519) 821-8000

or

Sam Fialkow
64 Baird Street
Red Deer, Alberta
T4R 1K6
Telephone: 342-1393

Barn Charts, Notebooks, Herdbook et al

Wall charts are available from numerous sources. These materials are usually designed to record pertinent information of a fairly basic nature. Herdbooks are available from most stationery stores. They allow for a more detailed record of information than the simple wall chart, but the access to the recorded information is limited.

B. - BEEF

A beef producer's prime objective is to produce the most pounds of beef for market at the least cost and in the least time. A good record keeping system can help to achieve this aim.

The primary purpose of a herd improvement program is to benefit the performance of a herd in terms of the farmer's needs, plus those of the cattle feeder and the beef consumer. Research has shown that systematic measurement of performance and evaluation of the recorded data gives the necessary information for more accurate identification of superior bulls and cows. A consistent breeding program can be developed and tied in with the selection of breeding stock by measurable traits.

By comparing the herd summaries for a herd over a period of several years, the effects of management changes can be determined and evaluated.

Records for the beef enterprise can be basically divided into two types:

1. Breeding Records-

   These are geared to improving the genetic potential of the herd and by definition are long term.

2. Production Records -

   These are used to measure the economic efficiency of the unit and measure such things as feed fed per live weight gain and calf weaning percentages.

Both sets of records provide information on management decisions. Both are essential for the efficient operation of the beef enterprise.

Beef Record of Performance (ROP)

The Alberta Beef ROP is a computerized record keeping system based on several performance related characteristics. Research and on-the-farm statistics have proven that an animal's growth rate has a high heritability which will respond to selection pressure. This selection can be applied on weaning weight, feedlot gain, or as a combination of both the dam's milk production and the calf's own ability to grow.

Record of performance is the systematic recording and measurement of valuable reproductive traits that contribute to the efficient production of beef animals. These are:

1. fertility and fitness
2. rate of gain
3. mothering or nursing ability
4. efficiency of gain
5. carcass desirability
6. longevity

Other traits such as hair color or shape of head are of lesser value and selection for them will tend to slow progress in improving characteristics that are more economically important.

The rate of improvement for any characteristic is determined by its:

heritability

selection differential

genetic association between the traits

generation interval

Heritability measures the amount of any characteristic which can be passed on from the parents to the offspring. Therefore,

the strength of heritability of a particular characteristic, and the speed of reproduction will determine the rate at which a particular characteristic can be improved. (e.g. live weight gain).

Selection Differential is the difference, for a particular characteristics, between the selected individuals and the average of all animals from which they were selected. The degree of differential is influenced by the proportion needed for replacement, the number of traits that are considered in selection, and the differences or variations that exist among the animals.

Genetic Association between traits refers to the relationship, or correlation, between inherited characteristics, such as feed conversion, to rate of growth.

Generation Interval is the average age of all parents when their progeny are born. Generation interval may be five years in many beef cattle herds.

The expected rate of genetic improvement in beef cattle is relatively slow. This is mainly because of the low reproductive rate, the large number of traits of economic value and the long generation interval. The low reproductive rate (which makes it necessary to keep a high proportion of the offspring, especially females, as replacements) and the large number of traits involved limit the amount of selection that can be practiced (selection differential). However, with the exception of fertility, most economically important traits seem to have reasonably high heritabilities.

ECONOMICALLY IMPORTANT TRAITS

Trait		Heritability (%)
Calving interval		not heritable
Weaning weight		30
Feedlot gain		45
Efficiency of gain		40
Yearling weight		50
Carcass traits:	carcass cut-out	25 - 50
	rib-eye area	70
	tenderness	60

The Main features of the Alberta ROP Program

1. It is designed to assist beef cattle breeders.
2. It is based on a home test designed to cover the whole herd.
3. It begins by weighing the calves at or near weaning.

A report is sent to the farmers after weighing and contains the following information:

a. Adjusted average daily gain, which is arrived at by calculating

$$\frac{\text{weaned weight - birth weight}}{\text{age at weaning}} \times \text{dam adjustment factor}$$

(the dam adjustment factor refers to the fact that a heifer produces less milk than a mature cow).

b. Weaning index (ranking the calf in its own group).

c. Ranking (placing the calf in order of decreasing rate of gain - birth to weaning).

d. Adjusted 200-day weight.

e. Gestation period (if breeding date is known).

f. Calving interval.

g. Summaries for:
- each management group as a whole
- each sire used
- the breeds of sire
- the breeds of dams

4. Calves are accepted in groups of not less than five of one sex and not more than 90 days range in age within a group.
5. The feeding test covers approximately 165 days. Potential breeding animals should not be fed or implanted with hormones at any time prior to or during the feed test.
6. Calves raised on nurse cows or foster mothers are not calculated with the rest of the calves at weaning, but as a separate group. Please note that transplant calves fall into this category.
7. The report to the breeders, upon completion of the feeding test, contains the following:
   a. adjusted 200-day weight
   b. weaning index and rank
   c. average daily gain during the feed test period.
   d. index of average daily gain during the feed test period and rank
   e. adjusted 365-day weight
   f. yearling index and rank.

8. The breeder receives a detailed report of the results on his herd and has a choice to release the information privately or publicly as desired.

Each animal on ROP is indexed on its gain to weaning, gain on feed and life-time gain. The index is an expression in percentage of points of how the individual performed in its group. An index of 100 indicates that the animal is equal to the average of the group for whatever trait the index is calculated. An index of 120 means the animal is 20% above the average of that group. The index is calculated within each herd, therefore, management does not influence this index.

The ROP records provide the producer with information on which to make the following decisions:

a. herd sire selection

b. cow culling

By comparing the herd summaries over a period of time, the producer is able to evaluate the effects of herd management decisions.

Yearling Weight Records

A column is provided on the weaning report to record a yearling's weight in spring.

a. Weight - the program computes an adjusted 365-day weight (it is possible to extend this to a 550-day test).

b. Group - the owner has to assign animals to a group.

c. It has to be indicated whether bull calves were castrated after weaning.

A similar report is issued which gives the following:

a. Average daily gain to weaning and ranking.

b. Average daily gain on feed and ranking.

c. Adjusted 365-day weight and ranking.

d. Similar herd summaries as used for weaning, but including end of test data.

Eligibility

The beef producer must be able to put a minimum group of five calves of one sex born within a 90-day period onto the program.

The following is the minimum information required:

a. tattoo or eartag number (dam)

b. birth data (dam)

c. calf number

d. calf birth date

e. sex of calf

f. weaning weight

g. start of test - sex (refers to castration before or during ROP test period)

h. weigh date (start of test)

In order to enroll in the ROP Program, contact one of the following:

District Agriculturist

or

Regional Livestock Specialist

Performance Test of Replacement Bulls

The following performance test stations in Alberta completed tests under the Federal-Provincial Test Station Policy in 1980-81.

Station	Contact
Alberta Beef Cattle Test Ellerslie	Chuck Huedepohl 427-5085
Alta Blonde D'Aquitaine J. Gowans, Bowden	S.M. Bilton 227-2525
Alta Brown Swiss E. Thiesens, Strathmore	T. Kostenuke 638-2392
Alta Charolais J. Gowans, Bowden	Ken Lang 556-2053
Alta Gelbvieh Highway 52, Raymond	A. Carlson 653-2297
Alta Hereford Centre Innisfail	J. Ellingson 227-5246
Alta Hereford Sire Group E. Moss, Bassano	E. Moss 472-3016
Alta Murray Grey Claresholm Beef Producers	M. Glimsdale 625-2213
Alta Salers B. Wise, Irricana	Alex McTaggart 266-7369
Alta Shorthorn R. Kaiser, Hussar	Bruce Roy 337-2342
Alta Simmental Calgary Power Farm, Duffield	M. Davidson 731-3941
Can. Limousin B. Wise, Irricana	Can. Cattle Consultant 230-2737
Can. Maine Anjou B. Wise, Irricana	Brian Kitchen 273-8219
Can. Romark B. Felstad, Dapp	Barry Felstad 954-2190
Hart Angus Bull Test Claresholm Beef Producers	O. Hart 625-2127
MacKenzie Bros. Red Angus Claresholm Beef Producers	T. MacKenzie 653-2336

Station	Contact
Red Angus Breeders of Canada G. Moore, Olds	Wayne Sibbald 932-5587
Red Angus Breeders of Sangudo M. Sanders, Sangudo	M. Sanders 785-3141 or D. Wildman 785-2091
Southern Alta Angus Club Hill Feedlot, Lethbridge	D. MacKenzie 653-2539
Vermilion College	G. Etherington 853-2971 - 325

In each station, all bulls received the same management and feeding program. It is possible to make comparisons among the bulls in a particular station, keeping in mind that bulls from different herds were raised under different conditions up to the time they entered the station as weaned calves. Direct comparisons among stations should not be made as the rations fed and management varied from station to station.

Other Beef Cattle Recording Systems

a. The Department of Veterinary Clinical Studies, Western College of Veterinary Medicine, University of Saskatchewan in Saskatoon distributes a booklet called "Programmed Animal Health and Production Record for Beef Cows". This pocket record book has been designed by the Western College of Veterinary Medicine to assist cow-calf producers with record keeping for their beef cow herds. The booklet attempts to follow the cycle of a typical beef cow herd for a full year. This information will help to measure the performance of the entire herd. The herd information can then be transcribed to individual cow records to allow for the recording of a cow's complete production performance--keep high producers and cull low ones.

Additional information can be obtained from:

Department of Veterinary Clinical Studies
Western College of Verterinary Medicine
University of Saskatchewan
SASKATOON, Saskatchewan
S7N 0W0

Similar to the dairy records, Herdbooks and charts are available from many rural stationery suppliers.

b. Arnold-Nasco Ltd., Guelph, Ontario, supplies "Individual Cow Record Cards". All necessary breeding information on each cow can be recorded. A complete four-year record is provided on the cow's production, health, breeding and calves. The form is quite large and spacious. In addition to the four-year records, space for three more one-year records is provided on the back.

Available from:
Arnold-Nasco Ltd.
58 Dawson Road
Guelph, Ontario
N1H 6P9
Telephone: (519) 836-3330

Cost - $2.55 per 25 or $9.00 per 100

The Breeding Wheel described in the Dairy Section can also be used to record the reproduction aspect of the Beef-Cow aspect of the Beef-Cow-Calf Enterprise.

c. "Cowculator", system is a large bulletin board covered with a record sheet. The sheet is marked off into months across the top with cow identification running down the side. Records such as breeding dates, calving dates, and pregnancy checks are marked on the board with different colored marker pens. In addition, there's room to write in information on health treatment and calving details. Seven months of records are on the wall at any one time. This record system can be as simple or complex, as basic or elaborate, as an individual wants.

Available from:
Horst Choring Aids
R.R. # 23
Wallenstein, Ontario N0B 2S0
Telephone: (519) 664-2524

d. Easton Cowdex Cow Management System, organizes all the vital herd information into a vinyl covered, loose-leaf binder:

- calving date
- breed back date
- heat check date
- pregnancy check
- health and veterinary record
- cow performance record
- breeding date
- sires used
- progeny record
- choring record
- health service dates

Knowing where each cow is in her cycle is all important for profitable herd management.

For further information contact:

Easton Products, Inc.
R. R. #3, Blooming Prairie
Minnesota, 55917
Telephone: (507) 583-6610

e. Canfarm offers a Beef Finishing Service which blends and balances all the factors that affect feedlot profits into one package. It includes such items as implants, breed of cattle, general management, housing, expected markets and the condition of the cattle as well as the quality of roughage and ration balancing. The program can be updated at anytime to include the latest beef management research. The computer can also figure out the most profitable rate of gain, the most economical ration using the feeds the farmer has available, whether one or two

implants would be best and when the farmer should sell those cattle to make the most profit.

For more information contact:

Canfarm
P. O. Box 1024
Guelph, Ontario
N1H 6N1
Phone: (519) 821-8000

or

Sam Fialkow
64 Baird Street
Red Deer, Alberta
T4R 1K6
Phone: 342-1393

f. Dawson, Dau and Associates Ltd. has a Feedlot Management Program Available. This software is designed to automate physical record keeping for the day-to-day operations necessary to run small to moderately large (about 5000 head) cattle feeding enterprises.

Before animals can enter the feedlot, this information is needed for the computer (number of pens, maximum number of animals allowed in individual pens, types, quantities and value of feed ingredients, ration composition, names and addresses of feedlot clients). Once this is done animals can be assigned unique ear tag or brand indentifications grouped into lots linked to owners from the client list, and routed to the appropriate pen(s).

At the end of each month a billing report may be produced showing animal status and charges for the month, as well as summary information cumulated from the beginning of the feeding period. If desired, interim profit/loss statements can also be printed.

Summary information about the closed out animals is retained until the rest of the animals in the lot are sent to market.

Program Physical Limits:

- up to 255 client
- up to 255 lots
- up to 126 pens
- up to 255 animals per pen
- up to 15 separate rations
- up to 26 ration ingredients
- up to 4,095 animals within a given ear tag or brand group

Minimum Computer Configuration Required:

- 1 Apple II or Apple II plus microcomputer with the 48K memory and Language System options.
- 2 diskette drives
- a video monitor or standard T.V. set with an R.F. adaptor
- any serial or parallel printer capable of displaying 80 columns of output

Pricing

- Manual Only*	$ 20.00
- Evaluation Kit (Manual & Demo Diskette)*	$ 30.00
- Complete Package (Manual & Feedlot Diskette)	$500.00
- 1 Year Automatic Update Service**	$250.00

* price of the manual is refundable if you later purchase the complete system.

**automatic update service means that any program fixes or new features added to the package will be mailed to you as soon as they become available. Otherwise responsibility is limited to fixing any bugs discovered and reported by purchasers on an individual basis.

Further information:

If you require additional information about the package, write or phone:

Doug Dau
Dawson, Dau and Associates Ltd.
#235 Mayfair Place
6707 Elbow Drive S.W.
Calgary, Alberta
T2V 0E4
Phone: 284-6438 or 252-5575

C. - SHEEP

The sheep enterprise responds rapidly to selective breeding. In particular the characteristics of twinning or multiple births have an extremely high heritability factor. Many sheep flocks in other countries have now achieved lambing percentages of 225%. However, in order to achieve this, the farmer must have very detailed production records to enable the correct culling and breeding to be carried out.

Records should be set up to reflect the preference and need of the producer. They can vary from the computerized Sheep Record of Performance Program (ROP) to lined sheets of paper attached to a barn or farm office wall. The system chosen should serve the needs of the sheep producer. The records should be easily accessible, reducing the risk of forgetting to enter data during peak work time.

Ewe records should include date of birth and number, and identities of the sire and dam. The date of service and identity of the ram used, date of lambing and previous number of lambs produced are useful. The ewe's lamb should have the 50-day weight recorded. Data on the estimated sales value of the lambs and of the ewe plus actual sales price and purchaser's name, when sold should also be recorded.

Useful ram records include date of birth, identities of his sire and dam as well as his 50-day and mature weight. If possible, the identity of the ewes serviced and the number of lambs sired plus their 100-day weight and sales price should be recorded. The cost of the ram, breeder from whom purchased and returns from sale, if applicable, should also be recorded.

For a record system to be successul, sheep identification by ear tag, tattoo or 'paint' brand is essential. Ear tagging is usually permanent unless the animal looses the tag, tattooing is permanent and 'paint' branding is temporary. If 'paint' branding is implemented, only approved paint, available from livestock supply dealers, should be used.

The sheep industry is a small segment of agriculture and, therefore there are not as many programs available as for other livestock area. The main physical record system available is the Sheep Record of Performance Program.

Sheep Record of Performance (ROP)

The sheep ROP program is available in two segments.

1. Home Test
2. Station Test

The objective of the sheep ROP program is to assist the sheep industry in Canada to improve the economic productivity of flocks by providing a uniform national flock testing program that allows sheep producers to accurately assess the genetic potential of breeding stock. The emphasis of the program is on providing a comprehensive and technically sound assessment with sufficient flexibility to meet the needs of a diversity of environmental and managerial situations.

Home Test Program

It allows a farmer to produce data to compare the genetic differences between animals within his flock. This comparison can be made by either measuring the performance of an individual ram and/or ewe lamb and compare it with other lambs within the flock. This will help the producer to decide which animals to retain for breeding.

The following measureable characteristics which are used in the program affect the profitability of the sheep enterprise and are considered to respond to genetic selection.

- birth weight
- 50-day adjusted weaning weight
- 100-day adjusted weight
- average daily gain 0-50
  0-100
  50-100 lb

Ewe Performance and Reproductive Traits

- lamb survival rate
- early sexual maturity
- lambing interval
- ewe prolificacy
- ewe productivity

Ram Performance

- sire index of lamb growth to 50 days of age
- sire index of lamb growth from 50 to 100 days of age
- lambing ease

ROP data provides the sheep producer with information on reproductive and rate of gain performance. Many breeders add a visual appraisal of an animal before deciding whether to retain it for breeding. However, producers are cautioned to exercise great care in their visual appraisal and decide whether a visual defect on an animal with a high ROP score will actually affect its productive potential.

Lamb growth traits are highly heritable and significant progress can be achieved by selecting breeding animals on these

traits. The heritability of ewe performance, its maternal and reproductive characteristics are low and improvement within a breed is slow. These traits, however, have a considerable influence on productivity and profitability of sheep farming and should be considered in any breeding program.

As heritability of reproduction traits is low, selection of breeding animals should be linked with "family selection" (pedigree). This system is presently used by many purebred producers. For the commerical producer, it is best to develop a crossbreeding program to take advantage of hybrid vigor and to try to improve the level of performance of maternal and other economically important traits.

To assist producers in culling low producing animals and to select genetically superior ewes and rams for their breeding flocks, ROP provides three basic reports.

a. Lamb Performance Report

b. Ewe Productivity Report

c. Sire Report

a. Lamb Performance Report, sheep ROP, requires the following:
- owner's name and address
- breed code
- breeder code
- date lambs weighed for 50-day weight
- type of report requested
- lamb, ram, ewe identification
- age of dam
- sex of lamb
- number of lambs born, weaned and fostered for each ewe

- actual 50-day weight
- contemporary groupings of lambs
- optional information such as birth weight and comment codes may also be recorded

The growth rate is expressed as an adjusted 50-day weight and average daily gain for 0-50 days. Lamb weight at this age is strongly influenced by the ewe's milk production and to a lesser extent by a lamb's growing ability. This report yields the most accurate evaluation on the productivity of the ewe and this is reported as the ewe index.

Lambs weighed at 100 days of age require the same information as for 50-day weighing. This report will index the lamb's growing ability and rank in the flock. Data provided:

- lamb growth rate expressed as 100-day adjusted weight and average daily gain 0-100 days
- lamb index based on adjusted 100-day weight
- lamb multi-trait index based on lamb growth rate and type of birth. This index allows the producer to select simultaneously for these two traits.

For most breeders, it is advisable to use the lamb and ewe indexes for the selection of lambs and the retention of ewes since these values are relative to the average flock performance and are easy to use.

The lamb performance report provides the following information:

- ewe index - a measure of an individual ewe's productivity relative to the other ewes in the flock.

- average performance of the lambs within a contemporary group
- lamb survival rate

An index of 100 is an arbitrary number set to equal the average performance of a flock. All lambs and ewes are indexed relative to a flock's average, with individual animals having above average performance indexing above 100. Thus the selection of replacements is determined by a relative score; the lambs with the highest scores being kept for replacement.

Breeders are encouraged to weigh their lambs at 50 and 100 days and thus receive the best and most accurate information for both the lamb and ewe. A post weaning average daily gain report will also be issued to breeders weighing their lambs twice.

b. Ewe Productivity Report is issued at the end of each production cycle and contains the following:

- ewe productivity in term of lamb production
- lifetime productivity of each ewe reported for each lambing season, as well as a lifetime summary
- lifetime prolificacy of the ewe
- age of ewe at first lambing
- lambing interval
- prediction of the future productivity of the ewe

Producers selecting breeding ewes based on the above data will automatically select the prolificacy, lamb survival rate and lambing interval as these traits are highly related to ewe productivity.

c. Sire Report contains the following:

- average performance of the lambs for each sire used in the flock
- sire index for the 50-day and 100-day lamb weights
- incidence of lambing problems for each sire

Eligibility

All sheep producers in Alberta are eligible to enter their flocks. A flock may consist of more than one breed. To be eligible all animals within the breed selected for testing must be recorded. It is suggested to have a minimum flock size of 20 animals.

The following regulations apply to users of Sheep ROP:

a. Any purebred or commercial producer who complies with the requirements of the official test may take part in the program.

b. A breeder must have at least one group of eight lambs within the 50- or 100-day range weighed on the same day.

c. All lambs must be identified at birth. If no birth weight is recorded, tables are provided to record an average weight.

d. Lambs may be weaned within the eligible age range for 50-day weight or at the end of the test. Within a flock, it is technically sound to evaluate ewes on 50-day or 100-day lamb weights but not on a mixture of both types of data.

e. Suitable holding and weighing facilities must be provided by the breeder.

f. Growth - stimulating hormone and gonad stimulating hormone treated animals must be tested in separate, contemporary groups.

g. The official test period is from birth to 100 days of age, however, a breeder can weigh his lambs in the designated age ranges.

h. Indices will be computed within flock, breed, or cross. The minimum number of animals within a flock for computing of the lamb index and the ewe index will be eight lambs of one breed or one cross. Also a progeny group for indexing purposes will consist of at least eight lambs.

Alberta Agriculture will supervise the weighing of lambs on test when requested and will assist breeders to get established on the program.

For further information on the Sheep Record of Performance home test program contact:

Beef and Sheep Branch
Alberta Agriculture
8th Floor, Agriculture Building
9718 - 107 Street
Edmonton, Alberta
T5K 2C8
Telephone: 427-5077

or

Sheep Specialist
Alberta Agriculture
Airdrie Regional Office
Bag Service No. 1
Airdrie, Alberta
T0M 0B0
Telephone: 948-5101

2. R.O.P. Test Station Program

The genetic potential of ram lambs from different flocks can be measured and evaluated at a test station. Test stations measure the genetic differences in the rate of gain of rams under

uniform testing conditions which are not possible under the varying conditions of home test program. As the performance of the test station rams can be evaluated uniformly, the test station sale at the end of the program provides producers with a good opportunity to select top producing rams to use in their own flocks.

Rams are brought to the test station when they are weaned at 50 days of age. At the test station they are given several days to adapt to their new environment and rations.

Since the rams have been removed from their farm environment, the test station focuses only on the growth period measured at the test station, thus yielding an evaluation of lambs on the basis of average daily gain. However, the testing agency may provide supplementary information to buyers in order to establish the potential value of each ram in their breeding strategy. This supplementary information consists of:

- type of birth
- backfat measurement
- weight per day of age of ram
- on test and off test weight of ram
- average breed performance

Producers must be cautioned when buying rams on the basis of post-weaning rate of gain as there are many other factors which may affect the productivity of a flock.

Eligibility

Any sheep breeder is eligible to enter registered or non-registered purebred ram or ewe lambs at the test station. Before animals can be accepted, however, they have to be inspected by a veterinarian appointed by Alberta Agriculture and declared free of communicable disease or any condition which might endanger the health of other animals.

All lambs will be fed in individual groups governed by a set of norms. Lambs will be separated by sex,, date of station entry and by size of breed. Lambs should be vaccinated for enterotoxemia at least two weeks prior to station entry and rams should have had their feet trimmed. These are just some of the criteria that must be adhered to for entry into the program.

After the adjustment period of several days, the official test commences and all lambs will be weighed at two-week intervals. The recorded test weights will be the average weight of two consecutive days. All animals are fed a free choice ration in pen stalls with individual feeders and automatic waterers.

All animals will have their feet trimmed before being put up for sale and all lambs will be sheared after the last group is off-test and before the first culls for physical defects are performed.

After the test a report for each animal will be issued containing the following:

- beginning weight of lamb
- ending weight of lamb
- average daily gain while on test (indexed)

- ultrasonic backfat test
- overall within-breed performance evaluation

No overall performance index will be calculated and all performance figures for each animal are listed separately on the sales catalogue.

Sire indexing on a weighted basis will be calculated when a minimum of 20 lambs from one sire are available for testing; this performance rating can be accumulated over four years.

Lambs cannot be removed from the test station prior to the end-of-test without the permission of the station management committee. This committee can also reject animals and require the owner to remove the lambs from the station.

The breeders are required to pay feed, and veterinary fees through a $30 test fee per lamb. If the feed and veterinary expenses exceed $30 per animal an additional charge will be made; if they are less, the breeder will be refunded.

There are no limits on the number of lambs a breeder can enter on test. However, should space become scarce, breeders may be required to limit the number of animals to be tested. Applications for test station space, have to be in groups of five and half of entry cost should be sent to:

H.D. Scheer
Livestock Supervisor, Sheep
Alberta Ariculture
9718 - 107 Street
Edmonton, Alberta
T5K 2C8
Telephone: 427-5077

Breeders will be notified when tests have been completed in order to pick up lambs not selected for sale.

ROP provides a test year summary annual report for general use containing the following:

- producer enrolment on home and station tests
- provincial summary by breed
- national summary by breed
- breed summary by province

Barn Sheets, Record Cards

Ewe Record Cards are printed on standard, 8 1/2" x 11", card stock and punched to fit most looseleaf binders. These are available from Arnold Nasco Ltd., Guelph, Ontario. A ewe's records from birth together with a fleece and progeny record can be indicated. Other pertinent information can also be entered.

Cost - 25 cards - $2.10

50 cards - $3.75

Barn charts consisting of 11 1/2" x 17 1/2" sheets printed on heavy index card paper are also available from Arnold Nasco Ltd. The sheets are divided into 14 columns and are designed to give complete information on each ewe, lamb and ram in the flock.

Cost - 20¢ per sheet

Arnold Nasco Ltd., has a Farm and Ranch Catalogue which contains all their record systems available and a price list. Phone them toll free at: 1-800-265-8386.

D. - SWINE

Some of the problems hog producers encounter when developing records is recording the wrong information and having no routine gathering of numbers for the records. Producers fail to analyze the collected numbers at frequent intervals and fail to make management decisions based on the records collected.

When keeping records put them through a usefulness test - why do I need the information? If the information passed the usefulness test, then it has to pass the feasibility test - can you collect the necessary data, given the other requirements for time and the limitations of your facilities? Such as feed conversion in finishing. Gathering systems: Most financial data is generated in the farm office. Animals health and performance records must be made where the hogs are housed. Be sure all the data you are gathering will be adequate for all the uses you plan for it.

Scheduling summaries - some short-term reports are valuable; others are not.

a) The needs of management

b) The cost in terms of time

c) The unavoidable errors in some data

Summary appearance

a) Generate summary data that will be useful in planning

b) Summary report that summarizes all detail into one report

c) Use graphics where appropriate

d) Generate data that allows you to compare your hog business with other producers

e) Have summary in format that provides a side-by-side comparison between expected results and results achieved.

Storing data: Pertinent information must be sorted and stored so it can be located when needed.

Processing records: Doing it by hand calculations or by computer.

Listed below is suggested raw data to be kept plus any other data the pork producer deems important to his operation.

1) Total sows
2) Total gilts
3) Total sows bred
4) Total gilts bred
5) Total sows farrowed
6) Total pigs born live/sow
7) Total stillborn/sow
8) Total mummies/sow
9) Total gilts farrowed
10) Pigs born live/gilt
11) Total stillborn/gilt
12) Total mummies/gilt
13) Pigs born live/gilt
14) Total sows weaned
15) Total pigs weaned/sow
16) Total gilts weaned
17) Total pigs weaned/gilt
18) Total pigs weaned/sow gilt
19) Total lbs. of pork marketed
20) Total lbs. feed

21) Total feed costs

22) Ending nursery inventory

23) Nursery death loss

24) Ending grow-finisher inventory

25) Grower-finisher death loss

26) Sows and boars culled

27) Death loss/sows and boars

Swine producers should keep records on the cost and quantity of feed consumed, number of animals farrowed and weaned, number and cost of animals purchased, number marketed and dollar sales plus breeding and farrowing dates for individual sows.

For the manager, good records are essential to achieve an efficient hog production unit. A good record keeping system will permit the farmer to monitor and keep a surveillance on his animals' health and performance. The records will identify problem areas to the producer and help him produce the largest possible number of pigs for market.

Statistics have shown that the reproductive efficiency in the average swine herd is below that of top operations with super management. Moreover, the swine industry in Canada is at a point where it is difficult to sell a purebred pig without official swine ROP test data.

Effective swine herd health programs are difficult to maintain without adequate records. Complete performance data are invaluable in determining factor affecting herd health.

Maintain only those records which the herd manager will use and is able to keep on a regular basis. The records should be simple and readily accessible.

Information a hog producer will want to keep will vary. A purebred breeding stock producer will need different and more detailed records than a producer of slaughter hogs. Keeping track of the sows and the boars and gilts selected into breeding herd are the two most important things in a breeding operation. Records on individual animals, sow or boar, are of value in achieving genetic improvement, and will aid in culling nonproductive stock and in selecting replacement progeny from proven performers.

To obtain worthwhile information, the livestockman must know more than the headcount of his animals. He should be able to identify individual animals on the farm. Without the ability to identify a particular animal in the herd, a producer will be unable to utilize much of the modern livestock management practices and technologies available. Therefore, a farmer should use one of the following methods to identify individual swine:

- tattoos
- eartags
- earnotches
- neckchains
- electronic implants

Ear notching probably is the simplest, least expensive and most widely used identification system. Ear notching can be done at birth and is permanent. Fighting and other sources of damage to the ear may destroy all or part of the notch. However, this system usually provides easy reading for the life of the animal.

Even with their long life, tattoos are not perfect, as they require the reader to catch the animal before the tattoo can be

read. Tattoos also maybe difficult to read in dark-eared hogs.

Eartags have different styles and brands and each company offers their own speciality. Tags can be ripped out of the ear if caught in a fence gate, etc. and do a great deal of damage to the ear, possibly destroying any tattoos or notches in the process. Tags have a problem with reading from a distance and at times may become caked with fecal material or dirt making it difficult to read.

Records kept on <u>individual sows</u> should contain the following:

a. sow identification
   - number
   - breeding background
   - date brought into breeding herd

b. reproduction record
   - date of first estrus or heat
   - breeding and farrowing dates
   - number of pigs born live and total litter
   - average birth weight (include uniformity or non-uniformity of litter)
   - abnormalities
   - weaning date and weight

c. litter management record
   - dates of routine management
   - inoculation, castration, etc.

d. health record
   - health problems
   - treatments used
   - success of treatments
   - death losses and dates of losses

Herd Records should be used to summarize important factors of the herd production on a weekly or monthly basis. The herd managers should consult the records to compare with previous records or with production goals. There should be sufficient detail to indicate changes in the herd's performance. The following information should be included:

a. Reproduction Records
   - sows serviced (first, second service)
   - litters farrowed
   - piglet numbers weaned
   - number of litters weaned

b. Death Loss
   - category (sows, weaners, feeders, etc.)
   - weight (23-45 kg, etc.)

c. Inventory Changes
   - pigs sold
   - pigs bought

d. Feed
   - herd total
   - rations

e. Market Information
   - age pigs marketed
   - carcass grade

This information should answer any of the following questions:

- what was the average size litter born
- average size litter weaned
- percentage of pigs born dead
- percentage death loss

- repeat breeding, percentage
- feed conversion efficiency
- average marketing index

This information can be recorded with one or a combination of the following specialized recording systems and methods.

Swine Record of Performance (ROP)

Swine ROP is a joint federal and provincial program. It is designed to identify animals of superior breeding ability as an aid to selection of breeding stock. Advisory boards and committees help to keep the program relatively uniform across the country to achieve a national swine industry structure which will facilitate optimum use of genetically superior boars and gilts. Considerable improvement of such important economic traits as backfat thickness, rate of gain and feed conversion can be made by making intelligent use of performance test information for selective breeding of animals with sound genetic traits. This should be supplemented with a visual appraisal before a final choice is made.

Two different ROP Programs are available to Alberta swine breeders. The Home Test Program is administered by Alberta Agriculture and the Station Test Program is under federal administration.

1. Home Test

It consists of weighing and ultrasonic backfat testing of gilts and boars. The testing is done by provincial technicians on a breeder's farm. A report on backfat thickness and days of age adjusted to 90 kg, together with an index based on these data, and the total herd's average is sent to the producer. This

report will allow a producer to compare pigs within his herd. The report issued to a producer on this program includes the following:

a. swine breed
b. sire of pig
c. dam of pig
d. pig identification
e. birthdate of litter
f. adjusted average backfat thickness (the average of four measurements is adjusted to 90 kg)
g. adjusted age (the difference in days between the probe date and birthdate is adjusted to 90 kg (liveweight)
h. within herd index (the average performance of at least 20 pigs of one sex performance tested during the past 12-month period is used as the index base for each breed)
i. pigs who are weighed at approximately 30 kg entering the test are indexed for average daily gain

At the end of each three-month period all breeders on swine ROP will receive a computerized report which includes his herd average and an updated sire summary for all herd sires with hometested progeny.

Individual sow litter cards provided to all producers on ROP must be kept up-to-date to minimize recording of inaccuracies. In the past, boars have been the main focus of swine ROP and not enough attention has been paid to the overall productivity of the sow. Attempts are now being made to program litter information to make a report available to increase the use of the litter recording cards. The program will likely measure litter size and total pounds of pork weaned per sow per year.

2. Station Test

The ROP station test is designed to provide figures for herd comparisons by allowing breeders to enter boars for tests which determine the rate of gain and feed conversion efficiency and backfat thickness to 90 kg liveweight. The station capacity is 192 boars at Nisku, south of Edmonton, and 132 at Lacombe. The test stations can turn over boars three times a year, resulting in approximately 972 boars tested yearly. The test program consists of three divisions:

a. A sire's evaluation based on the peformance of eight of his boar progeny.
b. The performance of individual young boars.
c. Sire progeny performance based on eight of his barrows and/or gilts as slaughter animals.

Eligibility

Any purebred swine breeder or commercial producer as well as breeding companies are eligible to enroll their animals on swine ROP under the following stipulations:

a. A producer who owns and maintains a swine breeding herd of identifiable ancestry, crossbreeds as well as purebreds, is eligible to enter the program, providing that herd records have been maintained.
b. A producer who identifies all purebred pigs in accordance with the rules and regulations of the Canadian Livestock Records, Ottawa, and who satisfactorily has identified all crossbred pigs.
c. A producer who maintains complete and accurate breeding records of all litters to be tested, including the following information:

- identification of sire and dam
- birthdate of litter
- individual pig identification by tattoo or earnotch before weaning
- records of other management data as found on sow litter cards

d. All boars and gilts between 75-100 kg liveweight which are kept as potential breeding stock have to be tested.

All pigs entering the test station are purchased by Agriculture Canada. The purchase price is based on the receiving weight of the pigs paid on a pound basis at the average market price for 100 index slaughter hogs over the past three months. A $10 fee is charged for boars on the performance test program. Breeders enrolled in the program will receive the following:

a. Adjusted average backfat thickness (to 90 kg)

b. Average daily gain (from start of test)

c. Adjusted age

d. Feed conversion

e. Performance index

f. When a breeder station tests a minimum of eight boars from a herd sire, he will receive a sire evaluation summary.

For further information contact:

Pork Industry Branch
Alberta Agriculture
Swine Breeding Centre
R. R. #2
Leduc, Alberta
T9E 2X2 Phone: 986-5055

or

Livestock Division
Agriculture Canada
831 Federal Building
9820 - 107 Street
Edmonton, Alberta
T5K 1G2 Phone: 425-9820

or Regional Livestock or Swine Specialist.

Herdex Calculator Systems for Sows

This system is designed to give a swine producer a daily read-out on the condition of every animal in the herd. The system consists of a large bulletin board with exchangeable recording sheets. The sheet is organized vertically into months and days and horizontally into lines for individual sows. Entries are made by using colored felt pens for the different types of information recorded.

The colored codes marked on the chart help to automatically determine when to expect heat, when to wean, when to market and when sows are expected to farrow. Special marking pens plus extra monthly chart sections, self-adhesiving reference lines and identification strips permit a farmer to maintain years of detailed records.

A swine producer can easily program the Herdex System to fit his specialized needs. By adjusting the removable reference lines located on the acrylic coverplate he can plan to wean at 32 days, 28 days, etc. or he can plan to market in 26 weeks instead of 32 weeks. A user is able to record such data as changes in feeding rations, worming and other medication.

There is enough space for specialized codes and notations. It is possible to mark down boar utilization, health condition and treatment, number of pigs at farrowing and weaning. This information can be used to select high producing sows and top breeders and single out those animals which should be culled.

The Herdex System will avoid hit-or-miss breeding schedules and reduce or eliminate unexpected farrowings. The forgotten

dates which can foul up the pig operation will be kept at a minimum.

The system can provide accurate, up-to-date information, and at a glance you will be able to determine which sows are ready to be bred and which ones are due to farrow, ready to wean and ready to market. Permanent records make it easy to evaluate performance and efficiency.

There is provision for an accessory datafile permitting the user to record supplementary information on each sow and allow for recording of litter weights and other specialized data.

The Herdex System can be mounted in any convenient location such as farrowing barn wall or farm office. It is shipped complete with aluminum frame, transparent sliding covers, monthly chart sections, adhesive strips, name labels, hardware and four colored felt tipped pens.

Cost - Model S65 for up to 65 sows 164.70

Model S100 for up to 100 sows 213.90

For larger herds number systems from 101 to 500 are available.

Datafile - 65 cards 86.80

100 cards 111.60

200 cards 129.40

300 cards 131.75

Swingmount frames to mount multiples of 100 charts - 50.25

For further information contact:

Horst Choring Aids
R. R. #3
Wallenstein, Ontario
N0B 2S0 Telephone: (519) 664-2524

CANFARM SWINE MANAGEMENT PROGRAM

Canfarm in Guelph, Ontario, has a Swine Breeding Management program which can cull repeat breeders before they become a drain on the feed and housing budget. A producer receives a monthly schedule of predicted farrowing and weaning dates for all the sows for the following 4 weeks.

The same report also shows the number of pigs born dead or alive, together with the number alive at two days and the litter weight for each sow averaged over her lifetime production. Spaces allow the farmer to record new data when a sow farrows and any inherited abnormalities that appear in any of the piglets.

The breeding report shows the current status of each of the sows and tells you if she has been rebred. This allows for immediate culling of sows that have repeated more times than the farmer is willing to accept.

Another summary report includes all the information on production, but in this report the sows are grouped under the boars that sired them and then the groups are averaged. This allows the farmer to compare the performances of the boars he is using. Boars which consistently sire small litters or have other defects, can soon be culled from the herd.

The reports may also be broken down into barn lots on request. Enabling the farmer to help determine why he has more problems in one barn and not in the other barn.

There are still records to be filled out by the farmer, but these are simple journals where the farmer simply fills in the numbers in the appropriate column.

Some farmers prefer to purchase their own terminal and they can feed the information they have recorded on their journal

sheets directly into the computer. In minutes a report on their herd status, including the latest information is printed back at their terminal.

For further information contact:

Canfarm
P. O. Box 1024
Guelph, Ontario
N1H 6N1
Telephone: (519) 821-8000

or

Sam Fialkow
64 Baird Street
Red Deer, Alberta
T4R 1K6
Telephone: 342-1393

Breeding Wheels

The breeding wheels provide the swine producer with a convenient management tool which will help the farmer to establish pig management factors such as:

- date a sow is due to farrow
- date after farrowing to breed sow
- date sow comes into heat
- number of times a sow has been bred after farrowing
- which sows are pregnant

Arnold Nasco Ltd., Guelph, Ontario, supplies a daily, revolving 43 inch diameter breeding wheel calendar which is mounted on 48" x 48" brown fileboard backing. The tri-colored calendar is supplied with 100 pins and 100 pinhead markers for identifying sows.

The calendar has nine control indicator arrows:

1. date farrowed
2. creep feed
3. wean
4. date bred-1 week

5. date bred 2 weeks

6. date bred 3 weeks

7. date bred 6 weeks

8. & 9. open for farmer's own program

The calendar is based on a 114-day gestation period and can accommodate up to 325 sows.

The Sow Calendar Breeding Wheel is supplied by:

Arnold Nasco Ltd.
58 Dawson Road
Guelph, Ontario
N1H 6P9
Telephone: (519) 836-3330

Cost - $95

Record Books, Wall Charts, et al

There are a variety of other sytems, booklets and wall charts available from veterinarians, feed companies, etc. The publication, 1442/1976 from Agriculture Canada, "Swine Production and Management" contains directions and samples on the setting up of swine reproduction and health record system.

Arnold Nasco supplies swine record forms which can help to keep complete and necessary records of sows, sires, litter and allows calculations for profit and losses. The forms fit standard notebook binders and cost $2.25 for 25.

Len McQuay, Secretary, Canadian Swine Breeders Association, R. R. #5, Cambridge, Ontario, supplies sow litter record sheets which fit into a three-ring binder and are designed to record information for ROP. The sheets can also be used to keep an up-to-date breeding herd record of such details as sire and dam, breeding date if hand bred, identification and sex of each animal andbirthdate.

The Canadian Swine Breeders' Association also distributes special sheets for recording buyers of breeding stock for each sow in the herd.

The Easton Hog Carousel

It is a new sow herd record keeping system designed to cut down paperwork and keep records in order. The system was developed by a Minnesota hog operator to ease management on his own farm. The carousel is designed for use in herds with more than 200 sows.

Each Hog Carousel can keep track of up to 1,050 sows on individual sow record cards. The cards contain spaces to record complete breeding information and farrowing data for up to 11 litters per sow, plus additional spaces to record disease and parasite control measures for the sow as well as her litters.

Sows can be separated into many groups depending on how the farmer wants to arrange his breeding, gestation, farrowing and weaning schedules.

After a breeder receives the Carousel he has to set up the system and plan all the events in a 144-day cycle. The farmer can enter the management indicator tabs on the 144-day ring in

the sequence of his present management system. All current and historic sow data have to be entered on the individual cards and the cards sorted into groups according to their state in the breeding cycle. The grouped cards are dropped into the tracks around the inside of the Carousel.

Individually designed sow and boar cards allow a swine producer to record management information on each sow and litter including vaccinations, worming, spraying, plus production data on sows, boars and individual litters.

For smaller herds there is a Sowdex Model 200 available which can be used for herds with up to 300 sows. This system is a straight cycling file, rather than a carousel, but contains all the features of the Hog Carousel. The program features an effective and easy-to-use method that readily tells a producer how many sows are bred, when they will farrow, what services have been done and are to be done.

Both systems are supplied by:

Easton Products Inc.
R. R. #3
Blooming Prairie, Minnesota
U.S.A. 55917
Telephone: (507) 583-6610

Cost - Sowdex Programmer, Model 200 with
200 sowcards plus boar cards - $149.95 U.S.
Hog Carousel Programmer with 250 cards - $224.95
500 cards - $239.95

Set of 100 sow and 5 boar cards - $7.90 U.S.

Other business and individuals which offer software to pork producers.

Computerized Farm Information Systems, of Stillwater, Minnesota, offers two complete systems. The top computer system is for large hog operations and includes computer, printer, video screen and disc drive. It costs $13,400. The smaller system for 200 sow operation and less costs $7,000.

The Saskatchewan Pork Production Committee Production Record System

This complete system uses 4 types of record cards. An individual can use any combination of cards he wishes.

The 4 card record system includes:

1. Breeding worksheet
2. Sow production record and litter performance card
3. Sow herd production summary card
4. Grower and finisher worksheet

1) Breeding Worksheet

The breeding information is recorded "as it happens" and will supply information on boar usage, number of sows which are repeat breeders and when the sow is expected to recycle if she did not conceive, and so on.

2) Sow Production Record and Litter Performance Card

It provides a permanent production and breeding record of an individual sow, combined with the performance of each of her litters.

3) Sow Herd Production Summary Card

Does a complete summary on what has happened with the operation. The summary can be done weekly, monthly, quarterly,

etc., depending on circumstances and size of swine herd. Once a complete summary is done the date or time period covered is written in (i.e. month of October).

4) Grower and Finisher Worksheet

This card can be used by farrow to finish operators or by producers who purchase weanling pigs.

This record will provide information and comparison in the growing and finishing barn.

For further information contact:

Swine Production Records
Saskatchewan Agriculture
3130 - 8th Street East
Saskatoon, Saskatchewan
S7H 0W9

or

S.H.M.C.
1402 Quebec Avenue
Saskatoon, Saskatchewan
S7K 1V5

Swine Business the program designed by "Successful Farming" magazine enables pork producers to compare their purchasing, production and marketing practices to the performance of other producers enrolled in the program. All records are confidential and only individual producers will see detailed records and reports of their operations.

Producers submit quarterly summaries of their Swine Business records for compilation and analysis. Quarterly reports as well as annual reports are then returned for use as a planning tool, pinpointing strengths and weaknesses. Participants also receive a quarterly newsletter with production and marketing information and trends from the Swine Business data bank.

Program cost to subscribers is $150.00 per year. It is available through the magazine or through the Nutrend Feed division of Cargill.

Ozland Enterprises, Inc. has a system called the Pork-a-lator. It is a filing system which is a rotating calender wheel marked off in days for a full year with management programming located on the stationary perimeter of the unit. Each sow or group is recorded on a color coded sticker and positioned on the calendar wheel at the stage of their production cycle. The calendar wheel is moved each day. As any individual or group of stickers line up with the programming around the perimeter, management moves are called to the attention of the operator.

Works from a 20 to 600 sow operation
Address: Ozland Enterprises Inc.
Rt. 3 Vicksburg, Michigan
U.S.A. 49097
Telephone: (616) 649-0706

Sowculator System is a large bulletin board with a recording sheet covering it. The sheet is blocked off vertically into calendar months, with sow identification numbers running down the side. Entries are made with different colored felt marker pen. The board holds 7 months of herd records. As each new sheet is added to the board the sheet for the 8 months previous is removed from the other end of the board and filed. The system can be as simple or complex as an individual operator wants.

The system also as an optional attachment - a herd "Datafile". It is a compact card file system that attaches to the edge of the Sowculator. Permanent records on all sows can easily be transferred to these cards at regular intervals.

That way more extensive records can be kept on each animal. Accurate and up-to-date information, in turn, keeps one in closer touch with the animals.

One type of pen cards which is available.

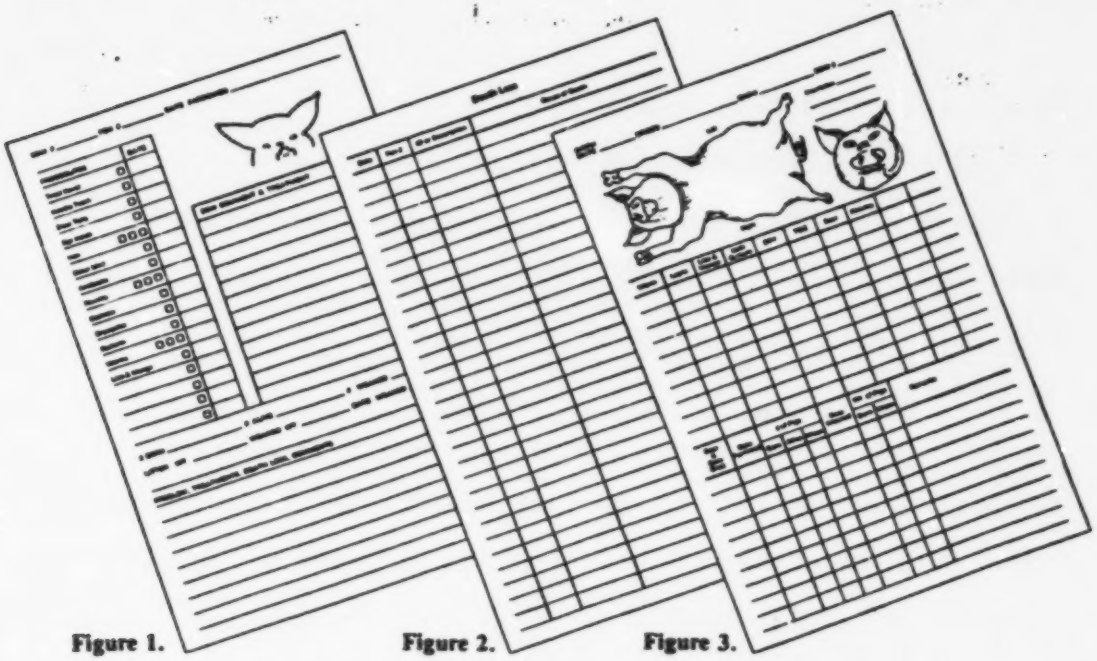


Figure 1. Figure 2. Figure 3.

Figure 1 shows the front side of a pen card. These are to be attached to the farrowing crate and remain with the litter of pigs as long as they retain their litter integrity.

Sow number is vital to ensure all of the information can be recorded on her permanent record (figure 3).

This information is used for culling sows and replacement gilts. The procedure column provides a physical form to check every time a procedure is performed.

Figure 3 shows the lifetime record for each sow in the herd.

Figure 2 is the backside of the litter card. It helps identify herd health status and provides a ready reference for tracing performance and problems. By simply entering date, pen

number, individual pig identification and cause of death, the record can be used to guide your management plans.

The sketch at the top left of figure 3 is used to sketch teat spacing, while the head sketch is for recording the sows ear notches.

Example of an actual farmer hog record system kept by Roger Solomonson of Leland, Iowa.

1) Sow, records: A yellow recipe card box holds index cards on each sow. On the index cards he records the sow's ear tag, number of litters farrowed, number of pigs farrowed, number of pigs alive at 2 weeks, number of stillborn and a description of the sow.

2) Monthly Inventory: Once each month record financial changes in the operation for that month. The form is sent to Des Moines as part of Farm Bureau's Freddie Computer program. The printout that comes back shows cash flow and compares the actual cash flow to the budgeted cash flow.

3) Early Comparison: At end of year transfers from the Freddie computer sheet to an Iowa State University sheet record system. The summary compares the farmer with 14 other producers in North Central Iowa. The reports analyze every facet of production and management and compare his performance to the averages for other in his area.

The monthly records provide control as well as figures on the relation of liabilities to assets. It also provides data on net worth, cash flow and a monthly profit and loss statement. All are useful in making financial decisions and the day to day monitoring of the operation. Also aid in charting the future

course of the operation and looking back at past progress.

Heifer Project International supply a Swine Management Calendar for $3.00 U.S. and a Sow Herd Management Wheel for $2.00 U.S.

To obtain more information contact:

P. O. Box 808
825 West Third Street
Little Rock Arkansas, U.S.A.
72203
Telephone: (501) 376-6836

Alan George of the Pork Industry Branch in Lethbridge has published a booklet called, "Record Keeping for the Swine Unit" and is available at the extension offices.

E. - POULTRY

Poultry and egg production have become very specialized. For every producer, large or small, it is important to know what it will cost him to produce eggs or poultry in comparison with his receipts.

Complete and accurate daily records of feed consumed, egg or animal production, flock, mortality, and, if possible, water intake should be kept on each flock.

Feed and water intake are the best indicators of the general health of any flock and by observing sudden changes in intake, one should be able to prevent disease and take corrective measures. Egg production records will indicate how well the flock is doing and consequently how well one does as a poultry enterprise operator.

To arrive at accurate production costs, a producer can either develop a system or use one of the formal record keeping books, charts or cards supplied free of charge by the Poultry Branch of Alberta Agriculture.

The simplest system consists of a lined scribbler or ledger book where the producer records all expenses incurred while producing and/or maintaining the flock. All expenses relating to water, power, feed, repairs, labor, bird replacement, etc. used in growing and production when compared to returns from eggs or the sale of birds will indicate if it is a profitable enterprise.

As with many livestock recording programs, a producer should have a means of identifying birds and/or flocks for accurate recording of relevant data. There are a variety of systems available from numbered adjustable leg bands and wing bands for

a turkey breeding flock to spiral leg bands and punched holes in the web of the bird's foot.

The poultry account book supplied free of charge by the Poultry Branch of Alberta Agriculture allows a farmer to keep a monthly account of all the poultry feed and equipment used, as well as labor, electricity, etc.. A "monthly poultry record" helps to maintain an inventory of the number of incoming and outgoing birds and eggs. Space is also allocated for a monthly record of the grades of all eggs produced.

Barn or wall charts are available for daily egg and feed records, including the number of birds removed due to culling or by death. Charts are available for health records. The chart, "Alberta Turkey Breeder Health Program" includes information on hatching date, source of pullets, number, strain, sex, vaccination type and date, routine medication and special purpose medication as well as removal of birds due to culling or death. For further information, contact your Regional Poultry Specialist or

Alberta Agriculture
Poultry Branch
9718 - 107 Street
Edmonton, Alberta
Telephone: 428-5089

11. FIELD AND CROP RECORDS

A farmer aiming for record crops in future years needs a record of his past crop yields and the circumstances under which the crops were grown. By studying previous records, crop production planning is easier. Sound farm management will reduce the risk of losses and will increase profits by decreasing costs. Any mistakes that would normally be overlooked become obvious as a field's past crop production history is examined.

Farm maps cannot be considered as direct field records, but they can be useful in the development of cropping programs. There are a number of ways to keep farm maps, depending on the uses. A farmer may wish to have a map of the farmstead showing the location of buildings, fences, wells, water lines, etc.. This map would be of great value when planning changes in the farmstead such as adding buildings. It is less costly to make errors on paper by trying out a location for a new building than to reconstruct the building at the appropriate location.
A map showing the legal location of a farm's total land is valuable. Air photographs, taken either from a plane or satellite (available for many areas of Canada) aid in developing farm maps.

Soil maps are available for every farming area in Alberta. All farmers producing crops should have knowledge of the soils they are farming. Attention should be paid to soil productivity, soil conservation, and other special soil characteristics of any particular field. A soil testing service is available through the district extension service of Alberta Agriculture. This service allows a farmer to test the soil of his fields to obtain the fertilizer recommendations for the intended crops.

Field maps are the most important maps a farmer should keep. They are useful in developing crop plans, and for recording acres, varieties, treatments, particular problems and production yields. These can be developed over other farm maps such as the soil map or air photos of the farm. Some farmers make a map showing permanent boundary of fields or other features and then use overlays upon which to show each year's crops.

Crop production records are necesary even for a minimum farm analysis. Crop yield information is needed not ony for measuring crop efficiency but also for livestock feed determinations. In themselves, yield records are not very meaningful unless data surrounding particular yield levels are recorded. Previous crops, varieties, fertilizer rates, pesticides, weather (including rainfall and moisture levels) and other material all help to evaluate and analyze production. If permanent field boundaries are in existence, either natural or developed, it may be convenient to record this information by field identification. Such a record could be developed for each field and several years' data could be maintained in the same record.

Through the study of production records, soils, varieties, fertilizer and other variables, farmers can gain insight that will give direction to future farm plans.

A crop summary record is needed whether or not individual field or crop records are kept. Yields for each crop and the areas involved are recorded so that total production can be calculated. Rented land should be recorded separately from owned land because the landlord may share in the cost of crop

production. The separation of the shares going to the renter and the landlord should be made after the total production for the farm, owned and rented, has been determined.

The measurement of the crop harvested is dealt with differently on every farm. If the crop is all sold, there is no problem. If it is stored, less accurate methods of measurement are needed. Number and volume techniques have been used. It is important that the unit of measure be a common one and corresponds to the price unit. Conversion tables, weights and measures and other useful means of measuring crop yields are available in many farm account books, the "Alberta Farm Guide" and the "Alberta Farm Management Data Manual".

Imperial Oil Limited through its Engro Agricultural supply dealers distributes the "Engro Crop Planning Record". This record book provides an excellent guide to keep crop and field information. The book has pages for farm soil maps, yearly field crop layout maps, field crop reports for individual fields with space to keep five years of records. The forage section has pages for forage crops, pasture layout maps and forage or pasture production records. The book includes field crop production summaries and space for five years of cropping season moisture records. Space is provided for a farmer's own remarks and notes on each field of crop grown. The book is available in Alberta from Esso agents selling Engro agricultural supplies.

Doane Agricultural Service, Inc. distributes a "Field and Equipment Record Book". The book is designed to keep non-financial records that are important for successful farm management. It has space provision for six years of records.

This will allow a farmer to develop an historical account of all cropping activities, to review key farming practices and evaluate cropping data to obtain leads on where the strong or weak points of his field crop operation are.

The book contains pages for the following records:

Farm maps - to plot the farm layout and to plan the cropping program for the year. Field numbers will refer to more detailed records in the field record section.

Field Records - to record information on individual fields. Forms are provided to record data for six crop years of up to 26 separate fields. Moisture level and amount of irrigation records can also be included in this section.

A second part deals with other records, motorized vehicles, non-motorized implements, buildings and structures, and tool inventory.

The farm map section provides a guide to codes useable on the maps. The field record pages are very detailed with space to record any other pertinent information.

The book is available from:
Doane Agricultural Service, INc.
8900 Manchester Road
St. Louis, Missouri U.S.A. 63144
Telephone: (314) 968-1000

Cost - $10.25 U.S.

Farm Gate Printers in Winnipeg distribute the Field Work and Farm Record Book. The book costs $15.00 and can be ordered from:

Farm Gate Printers
61 Gertie Street
Winnipeg, Manitoba R3A 1B5

They also supply:

Machinery and Equipment Log Book	$15.00
Dairy Journal and Income Tax Record	$10.00
Cow-Calf Management Stockman Tally Book	$25.00
Feedlot Management Stockman Tally Book	$25.00

The "Prairie Provinces Farm Account Book" has sections for crop production records as well as provisions for farm maps. The "Prairie Provinces Farm Account Book" is available from district extension offices.

Alberta soil maps plus other types are available from the Surveys and Mapping Branch, Alberta Transportation. Samples of field records and field maps are provided in the Appendix.

111. OTHER RECORDS

There are other farm data that should be kept. Records such as individual earnings of employees, along with Canada Pension Plan and Unemployment Insurance Contributions plus machinery maintenance records for warranty verification.

Record of labor hours may be helpful on a farm when a decision on replacement of an implement or vehicle has to be made. It will help in determining whether a more expensive, but more labor efficient device, should be purchased.

Canfarm in Guelph has a "labor Module" in its accounting program. This module allows a user to distribute the cost of hired labor to individual enterprises, to single lots of livestock or to individual crops.

A book of forms, "Individual Earnings Record", is available from the Workers' Compensation Board. A farmer who hires workers is legally required to keep an accurate record of all employee wages earned, together with the number of hours worked. The book must be kept up-to-date and be available for inspection by the Workers' Compensation Board. It is also possible to use the form for other legal payroll record keeping requirements.

The forms are available from any Workers' Compensation Board office in Alberta.

Countryside Data has a financial package which:

- handles 2500 expense items
- handles 800 checks - with an average of 3 expense items per check
  - (i) Each regular check allow 10 different items
  - (ii) Each payroll check allows 7 deductions

- has 100 expense and/or capital account codes
- has any number of checking accounts
- has 50 farm codes
- prints checks
- provides nine different reports
  - (i) Annual Budget
  - (ii) Budget/Actual Comparison - year-to-date
  - (iii) Budget/Actual Comparison - Any month
  - (iv) Net Worth Report
  - (v) Profit and Loss Report
  - (vi) Chart of Accounts
  - (vii) Check Register
  - (viii) Check Summary
  - (ix) Listing of Banking Accounts

For further information contact:

Countryside Data
4013 Nipigon Road
Lethbridge, Alberta
T1K 4P8
Telephone: 320-0782

Corex Dataline Ltd. has a financial service which keeps all the financial information for an individual. The user has access by using the telephone. Privacy of data is assured by a password system.

With the computer they can also determine optimum feed mixes, probable best crop predictions, and a wide variety of other problems which can affect ones profit.

In Edmonton, contact 437-7996 or in Lethbridge at 320-1225.

Homestead Computer Services Ltd. has developed a microcomputer based management information system designed specifically for farmers. It provides basic accounting, record keeping and planning functions for a variety of farm operations.

1. Farm Accounting Programs
   - i) General Ledger
   - ii) Balance Sheet
   - iii) Income Statement
   - iv) Inventory
   - v) Fixed Asset Record Keeping
   - vi) Cash Flow Planning
2. Enterprise Record Keeping
   - i) Field Crop Records
   - ii) Feedlot Records
   - iii) Cow/Calf Records
3. Planning (Management Simulations)
   - i) Field Crop Planning
   - ii) Least Cost Feed Formulation and Feedlot Profitability
   - iii) Cow-Herd Wintering Rations
   - iv) Communication Package

Hardware which is available:

- CRT/Keyboard unit includes memory map screen with 24 x 80 character display
- 2 Floppy disk drives - Micropolis or Tanden
- Minimum 630K on-line storage
- 64K RAM - CP/M operating system
- Dot matrix printer - parallel or serial

Training and Support which is available is:

i) On farm training session and system familiarization

ii) Complete and easy to understand instruction manuals on hardware operations and on the use of all programs

iii) 90 day warranty on total system

iv) Extended warranty available for up to 3 years

v) Annual renewable service contracts

vi) Program updates and improvements as well as overall system enhancements - are available to system users at minimal cost

vii) Homestead also provides a leasing option to farmers

If you desire additional information or have any questions contact:

Corvec Data Systems Ltd.
201, 10601 Southport Road S.W.
Calgary, Alberta
T2W 3M6
Telephone: 271-3421

Homestead
Computer Services Ltd.
2979 Pembina Highway
Winnipeg, Manitoba
R3T 2H5
Telephone: (204) 261-6740

Machinery records may be kept for several purposes. Service and maintenance records should be kept for warranty purposes, and for calculating the actual cost of running a piece of machinery or producing goods in an individual enterprise. The fuel usage record for single vehicles enables a farmer to charge fuel consumption to each piece of equipment.

The "Doane Field and Equipment Record Book" has two sections dealing with machinery.

a. Motorized Vehicles - Forms are provided for each motorized vehicle on the farm (trucks, tractors, combines, swathers, etc.). The pages provide a running account of maintenance, repairs and other information. Records on 20 motorized vehicles can be accommodated.

b. Non-Motorized Implements - Identification data plus maintenance and repair information on seeders, harrows, cultivators, etc. can be recorded. The forms also provide space for date of manufacture, serial number, date purchased, whether new or used and purchase price. This will be useful for inventory evaluation and for tax purposes when the machinery is sold. The book has space to keep records on 36 implements.

By entering each inspection, servicing, or repair made, a farmer will develop a chronological history of each vehicle. Readings from hour or mileage meters can help in scheduling service checks and verify that maintenance procedures have been taken.

The book has two additional sections dealing with other farm records:

a. The buildings and structures section provides a record of upkeep, repair and improvements to barns, silos, grain bins, service buildings, etc. Space is allowed for other data - date of building construction and initial costs.

b. The tool inventory provides an itemized accounting of all farm tools, their location and allows for the recording of other pertinent data.

An inventory of farm tools can be very useful, especially in the event of loss, theft, or fire.

The "Field and Equipment Record Book" is available from:
Doane Agricultural Service, Inc.
8900 Manchester Road
St. Louis, Missouri 63144
U.S.A.
Cost - $10.95

c. Livestock feed records- are important to measure production efficiency. Much difficulty can occur in keeping accurate records of farm-grown feed. Therefore, many livestock farmers tend to apply rules of thumb when budgeting or calculating cost of livestock production. There is usually more diversity in animal production than in crop production between farms. To rely on rules of thumb or applying "average" data can lead to serious management problems and mistakes in decision making. Thus, there is no real alternative for a farmer than to know his farm's cost structure and to achieve this end, a manager must keep records.

Feed records can be kept on individual animals, lots or pens or for the whole enterprise. Keeping feed records is greatly facilitated if all feed is bought off the farm. Feed use may be recorded on a daily, weekly or monthly basis. Estimates of the total feed used can be made if records are not kept on a continuous basis, but only by recording sample days. Amounts can be measured and recorded by either weight, volume, or a combination of both.

Samples of feed record pages provided in the Appendix. Moreover, the "Prairie Provinces Farm Account Book" has several pages for feed use records, entitled "Feed Use By Type of Enterprise". The records are organized on a monthly basis. The "Poultry Account Book" from Alberta Agriculture and other livestock record systems also have provisions for recording feed use and feed purchases.

APPENDIX

Brand No. or Tag No. _____

COW PERFORMANCE SUMMARY SHEET

Birth date _____
Year acquired _____
Purchased or raised _____
Cost of animal _____

Breed _____
Age when acquired _____
Spring or fall calving _____
Sale value _____
Date sold _____

ANNUAL PERFORMANCE

Calf #	Calving Date	Sire Breed & Tag No.	Calf Tag No.	Sex	Dam Weight at Weaning	205-Day Adjusted Weaning Weight	Weaning Index	Cow Efficiency	Observations
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

MEDICAL RECORD FOR COW (TREATMENT DATES)

Vaccinations					
Lepto.	Vibriosis	Wormed	Sprayed or Dipped	Pregnancy Tested	Other

Reprinted from Progressive Farmer/November 1977

HERDEX COWCULATOR

EWE PRODUCTION RECORD

Ewe No. _____ Reg. No. _____ Birth Date _____ Single _____
Twin _____
Breed _____ Sire _____ Dam _____ Triplet _____

Adjusted 90-day weight as lamb _____

Year	Sire	Date Lambed	Lamb No.	Sex	90-DAY WEIGHT					Adj. 2/ 90-day weight	Fleece weight	Wool 3/ credit	Ewe 4/ index			Remarks
					Date Weighed	Age in days 1/	Actual weight	Pounds/day of age	Calc. 90-day weight							

WEIGHT ADJUSTMENT FACTORS

	Age of dam (years) 3 to 6	2 or over	6	1
Ewe lamb				
Single	1.00	1.09		1.22
Twin--raised as twin	1.11	1.20		1.33
Twin--raised as single	1.05	1.14		1.28
Triplet--raised as triplet	1.22	1.33		1.46
Triplet--raised as twin	1.17	1.28		1.42
Triplet--raised as single	1.11	1.21		1.36
Wether				
Single	0.97	1.06		1.19
Twin--raised as twin	1.08	1.17		1.30
Twin--raised as single	1.02	1.11		1.25
Triplet--raised as triplet	1.19	1.30		1.43
Triplet--raised as twin	1.14	1.25		1.39
Triplet--raised as single	1.08	1.18		1.33
Ram lamb				
Single	0.89	0.98		1.11
Twin--raised as twin	1.00	1.09		1.22
Twin--raised as single	0.94	1.03		1.17
Triplet--raised as triplet	1.11	1.22		1.35
Triplet--raised as twin	1.06	1.17		1.31
Triplet--raised as single	1.00	1.10		1.25

SHEEP FLOCK BALANCE SUMMARY _____ 19 ___, to _____ 19___.

Item	Opening Inventory No.	Opening Inventory Wt.	Opening Inventory Value	Born No.	Bought or Transferred In No.	Bought or Transferred In Wt.	Bought or Transferred In Value	Sold or Transferred Out No.	Sold or Transferred Out Wt.	Sold or Transferred Out Value	Died No.	Closing Inventory No.	Closing Inventory Wt.	Closing Inventory Value
Ewes Exposed				XXXX										
Yearling Ewes Exposed				XXXX										
Yearling Rams				XXXX										
Lambs														
Rams				XXXX										
				XXXX										
TOTAL SHEEP														
Feeder Lambs				XXXX										
Feeder Lambs				XXXX										
Feeder Lambs				XXXX										
TOTAL FEEDER LAMBS				XXXX										
Other Livestock														
TOTAL OTHER		XXX				XXX			XXX				XXX	
TOTAL LIVESTOCK														

For Sheep Enterprise: A [ ] + [ ] + [ ] must equal [ ] + [ ] + [ ]

NOTE: If this does not check, some sheep have been overlooked, stolen, lost, died, sold, etc.

Swine reproduction and health record

BIRTH DATE _____ HEAD NUMBER _____

ARRIVAL DATE _____ REGISTRATION NUMBER _____

DESCRIPTION _____ TATTOO NUMBER _____

VACCINATION _____

BREEDING SELECTION CRITERIA _____

BREEDING AND PRODUCTION RECORD

Date	Event	No. Pigs Born		Av Birth Wt	Pigs Weaned		Sow Wt		Reasons for culling, disease, piglet mortality, etc.
		Alive	Dead		No	Av Wt	Farrow	Wean	

Code for Important Events
H — in Heat -- not bred
B — in heat and Bred
W -- Weaned pigs
F -- Farrowed pigs

LITTER RECORD FORM

Date Farrowed	Breeding of Litter

Total No. Born		No. Born Alive	
M	F	M	F

No. Weaned		No. Raised	
M	F	M	F

DATES ☞							
PIG NOTCH*	TATTOO	SEX	BIRTH WT.	WEANING WT.	8 WEEK WT.	No. Teats	
0							
1							
2							
3							
4							
5							
6							
7							
8							
9							
0x							
1x							
2x							
3x							
4x							
TOTAL							
AV.							

*No. printed is last digit of pig's no.

Notes on Sow and Litter: (Farrowing or milking trouble, disease, treatment, etc.)

_____

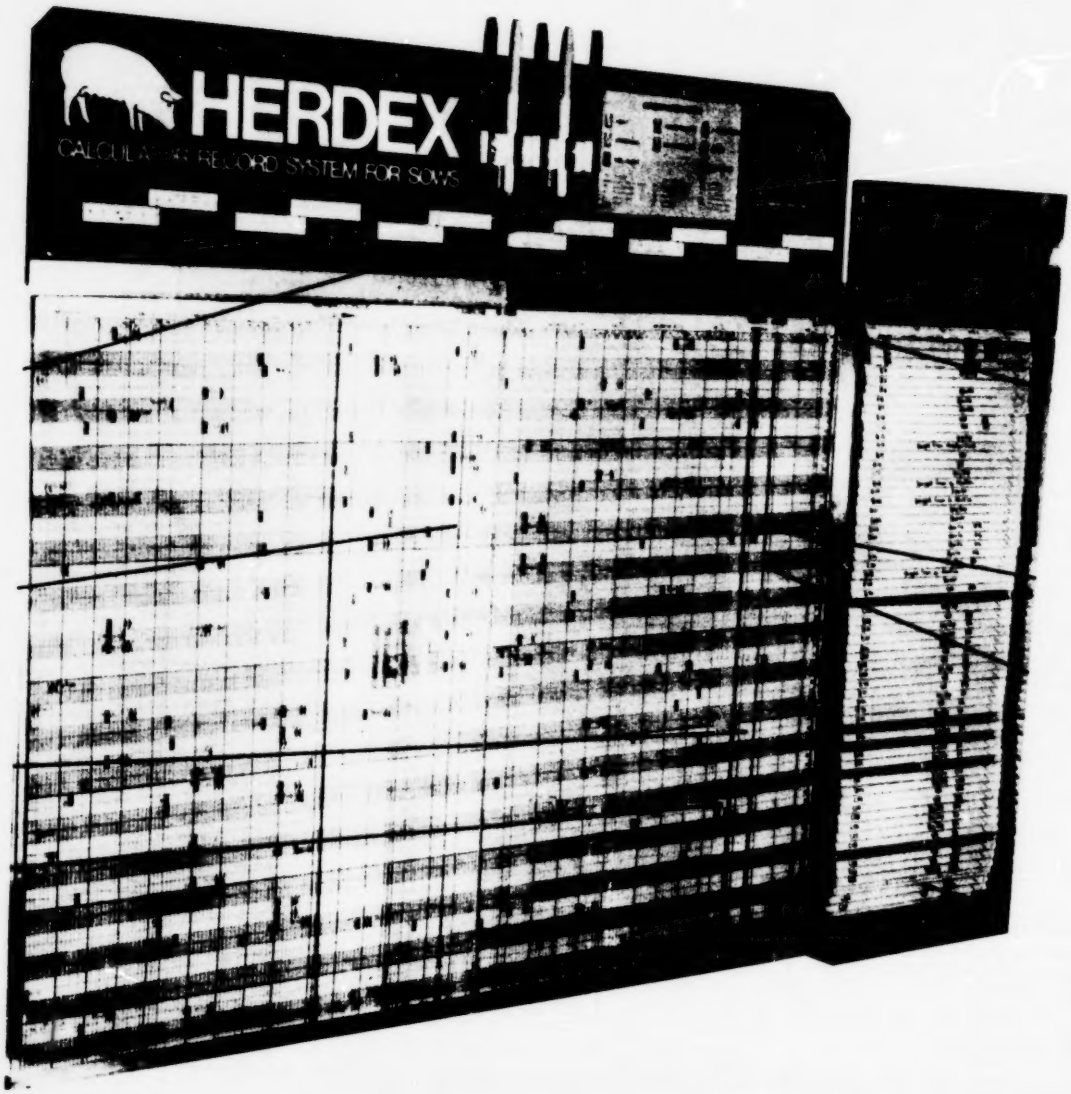
_____

_____

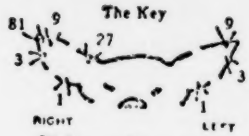
BREEDING RECORD

SOW'S No. and BREED	BOAR'S No. and BREED	SERVICE No. 1st, 2nd, etc.	DATE FRED	DATE DUE

HERDEX - CALCULATOR SYSTEMS FOR SOWS



Ear Notching System To Identify Litters And Pigs In Litter



Right ear—Litter number
Left ear—Pig number

Litter Mark: Right ear is used for litter mark and all pigs in same litter must have the same ear notches in this ear. Right ear is on pigs own right.

Individual Pig Marks: Left ear is used for notches to show individual pig number in the litter. Each pig will have different notches in this ear.

Notches are shown on this page for 149 litters. You can mark up to 161 litters with this system. Litter number and notches for that number are shown in each square.

1	20	39	58	77
2	21	40	59	78
3	22	41	60	79
4	23	42	61	80
5	24	43	62	81
6	25	44	63	82
7	26	45	64	83
8	27	46	65	84
9	28	47	66	85
10	29	48	67	86
11	30	49	68	87
12	31	50	69	88
13	32	51	70	89
14	33	52	71	90
15	34	53	72	91
16	35	54	73	92
17	36	55	74	93
18	37	56	75	94
19	38	57	76	95

96	114	132
97	115	133
98	116	134
99	117	135
100	118	136
101	119	137
102	120	138
103	121	139
104	122	140
105	123	141
106	124	142
107	125	143
108	126	144
109	127	145
110	128	146
111	129	147
112	130	148
113	131	149

Individual Pig Notches

1	6	11
2	7	12
3	8	13
4	9	14
5	10	15

Alberta AGRICULTURE

CARD No. .....

SOW - LITTER CARD

Breeder's Name .....

Sire Id. ..... Breed .....

Dam Id. ..... Breed .....

....., Day/Mo./Year Litter Born	....., No. Alive/Dead 1st Inspection	....., No. Alive at 3 days
....., Teeth Clipped	....., Notched/Tattoed	....., Tails Docked
....., Iron	....., Erysipelas	....., Males Castrated
....., Day/Mo./Year Litter Weaned	....., No. Weaned	....., Litter Wt. Weaned

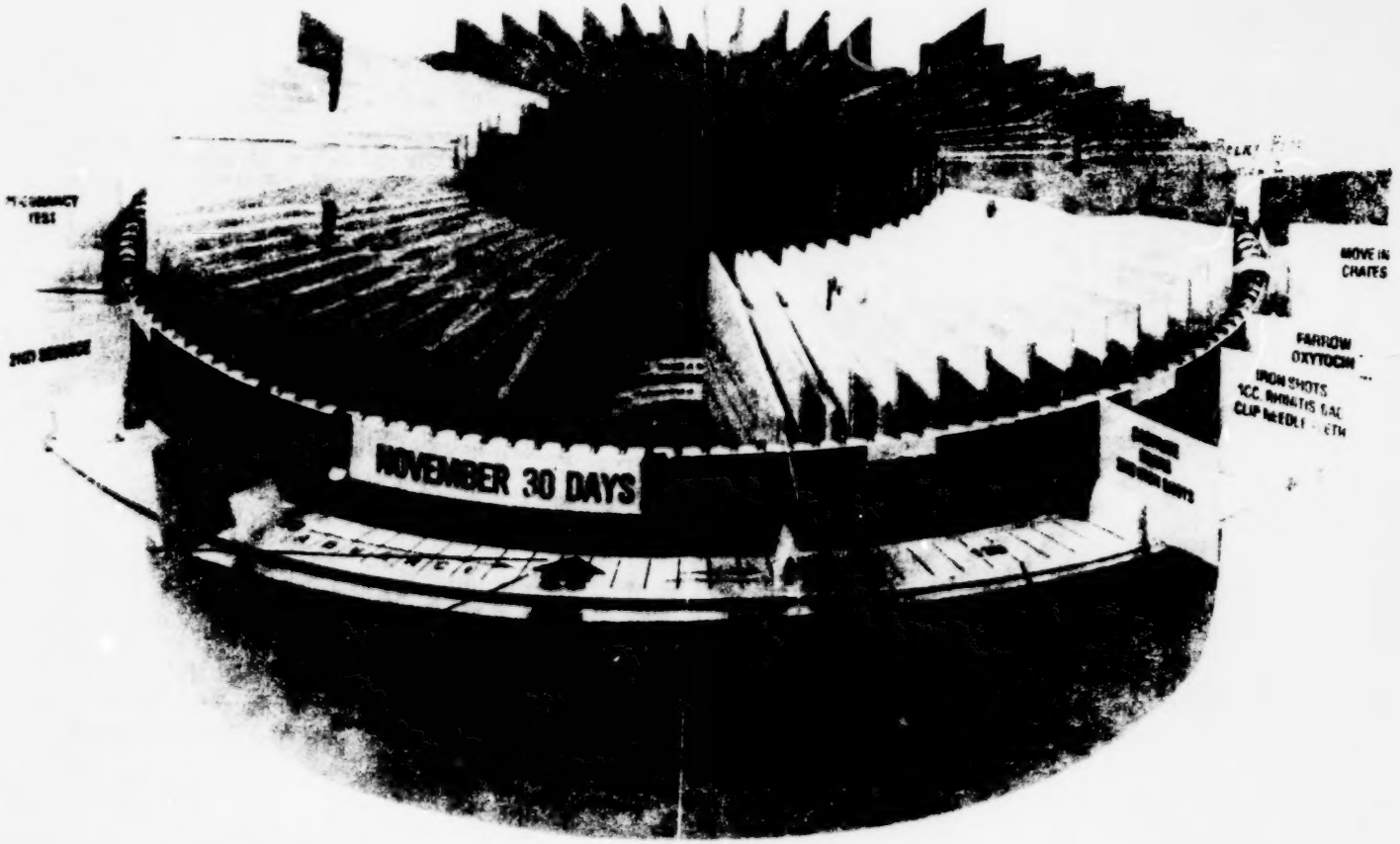
..... Day/Mo./Year Sire Sow Rebred (1st)

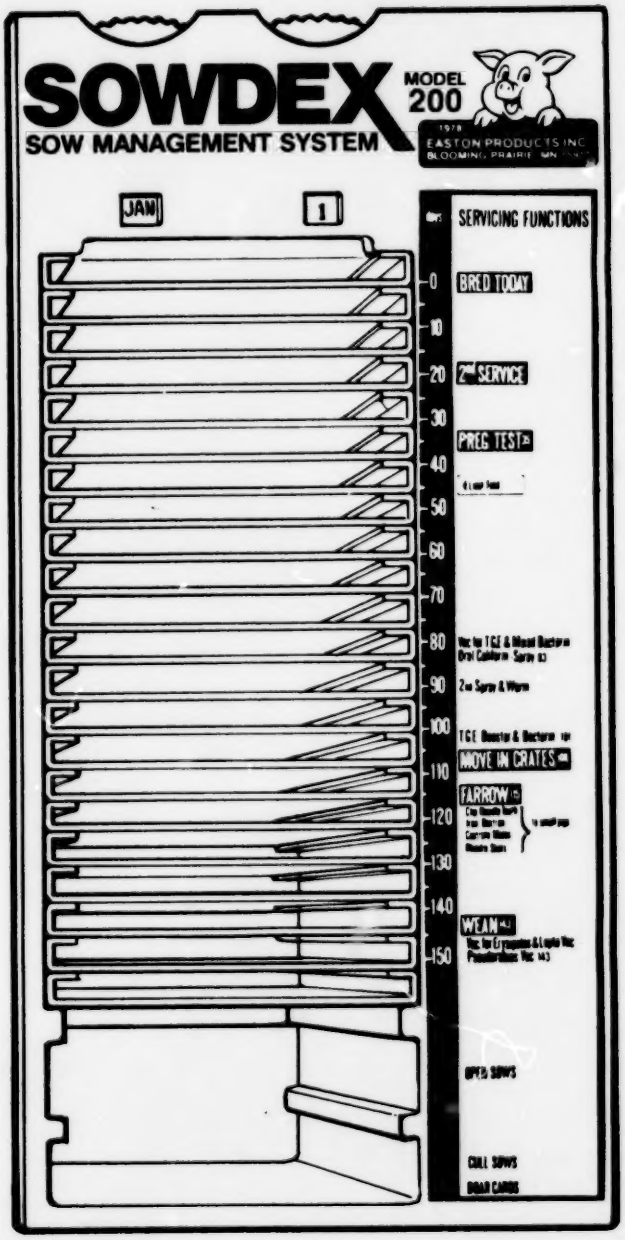
..... Day/Mo./Year Sire Sow Rebred (2nd)

Pig No.	Sex	Teats	Health Management Record

Note: Piglets must be identified before weaning.

EASTON HOG CAROUSEL




SOWDEX
MODEL 200
SOW MANAGEMENT SYSTEM
1978
EASTON PRODUCTS INC.
JAN
1
SERVICING FUNCTIONS
0
BRED TODAY
10
20
SERVICE
30
PREG TEST
40
50
60
70
80
90
2nd Spray & Worm
100
110
MOVE IN CRATES
120
130
140
150
OPEN SOWS
CULL SOWS
BOAR CARDS

Alberta Swine Breeders Associations

1. Alberta Swine Breeders Association - Secretary-Manager
Leon Boulter
ROSALIND, Alberta

This all-breed association represents its breeder-members at the provincial level. A full-time Secretary-Manager is employed by the association who also acts as a sales agent handling export as well as domestic orders for swine breeding stock.

The A.S.B.A. sponsors and manages the monthly station tested boar sales and also periodic all-breed sales of home performance tested boars and gilts for association members. All breeders selling performance tested boars at testing stations will be required to join the association for the $25 annual fee. The A.S.B.A. is also in a position to assist new breeders with their recording and management systems.

2. Western Hog Growers Association - Secretary
Phil Mueller
R.R. #2
LACOMBE, Alberta

3. Alberta Lacombe Breeders' Association - Secretary
George Croome
Box 122
BRETON, Alberta

4. Alberta Landrace Breeders' Association - Secretary
Nick Helfrich
Box 250
ROCKYFORD, Alberta

Alberta
AGRICULTURE

ANIMAL INDUSTRY DIVISION
POULTRY BRANCH

DAILY EGG AND FEED RECORD

NAME _____ PEN _____

MONTH _____ No. of Birds on 1st. _____

DATE	Eggs				Total	Birds Removed		Expenses	Income
	1	2	3	4		Died	Culled		
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									

MONTHLY POULTRY RECORD

Month _____ Hens at first of month _____

Pullets at first of month _____

Birds added _____ Date _____

EGGS LAID AND BIRDS REMOVED

Date	EGGS LAID		BIRDS SOLD		BIRDS DIED		Date	EGGS LAID		BIRDS SOLD		BIRDS DIED	
	Hens	Pullets	Hens	Pullets	Hens	Pullets		Hens	Pullets	Hens	Pullets	Hens	Pullets
1							17						
2							18						
3							19						
4							20						
5							21						
6							22						
7							23						
8							24						
9							25						
10							26						
11							27						
12							28						
13							29						
14							30						
15							31						
16							Total						

RECORD OF YOUNG STOCK No's.

First of month _____

Sold _____

Died _____

Home use _____

Placed in laying house

EGG GRADE.

Grades	Doz.	VALUE Per Dz.	Doz.	VALUE Per Dz.	Doz.	VALUE Per Dz.	Doz.	VALUE Per Dz.	Doz.	VALUE Per Dz.	Doz.	VALUE Per Dz.	Doz.	VALUE Per Dz.	Doz.	VALUE Per Dz.
'A' or Premium																
A																
B																
C																
Pee W's																
Cracks																
Rejects		XXX		XXX		XXX		XXX		XXX		XXX		XXX		XXX

Remarks: _____

MONTHLY POULTRY INCOME

DATE	MARKET EGGS		HATCHING EGGS		CULLS		BROILERS		ROOSTERS		MISC. INCOME	
	Doz.	$	Doz.	$	No.	$	No.	$	No.	$		$
Total												
Home Use											xxx	xxx

MONTHLY POULTRY EXPENSES

DATE	FEED - HOME GROWN						MISCELLANEOUS EXPENSES	
	LAYING			GROWING				
	Kind	Amount	$	Kind	Amount	$	Kind	$
							Phone	
							Electric Lights ..	
							Fuel (kind)	
							- laying house	
							- brooders	
							Litter (kind)	
							.....	
TOTAL	xxx			xxx			Disinfectant	
	FEED - PURCHASED						Medicine	
							Small tools	
							Packing supplies..	
							Trucking (custom).	
							- feed	
							- eggs	
							.....	
							.....	
							.....	
TOTAL	xxx			xxx			TOTAL	

LABOUR - REGULAR WORK

(Hours and minutes per day)

MONTH	FLOCK	SERVICING FLOCK 1/			HANDLING EGGS											
		operator	other family	hired	GATHERING			PACKING			GRADING			OUTPUT		
					op.	o.f.	hi.	op.	o.f.	hi.	op.	o.f.	hi.	op.	o.f.	hi.
1	Layers															
	Growing Stock															
2	Layers															
	Growing Stock															
3	Layers															
	Growing Stock															
4	Layers															
	Growing Stock															
5	Layers															
	Growing Stock															
6	Layers															
	Growing Stock															
7	Layers															
	Growing Stock															
8	Layers															
	Growing Stock															
9	Layers															
	Growing Stock															
10	Layers															
	Growing Stock															
11	Layers															
	Growing Stock															
12	Layers															
	Growing Stock															
Total for Year	Layers															
	Growing Stock															
Rate per hour																
Total Cost																

1/ Includes feeding, watering, brooding, checking, etc.

LABOUR - OTHER WORK

(Cleaning houses, moving brooder houses, picking up feed, delivering eggs, hauling manure, etc.)

DATE	KIND OF WORK	MAN HOURS			TRACTOR HOURS		AUTO MILES*		TRUCK MILES*		OTHER EQUIPMENT USE	GRINDING FEED (HOURS)	
		Operator	Other family labor	Hired labor	All Farm	Poultry	All Farm	Poultry	All Farm	Poultry		Total	Poultry

FERTILIZER RESULTS

PRODUCT _____ COST _____ RATE _____ TOTAL _____

COMMENTS: _____

CHEMICAL RESULTS

PRODUCT _____ COST _____ RATE _____ TOTAL _____

PRODUCT _____ COST _____ RATE _____ TOTAL _____

PRODUCT _____ COST _____ RATE _____ TOTAL _____

COMMENTS: _____

HARVEST RECORD

SWATHING STARTED _____ COMPLETED _____ HRS. _____

FIELD and WEATHER CONDITIONS _____

COMBINING STARTED _____ COMPLETED _____ HRS. _____

FIELD and WEATHER CONDITIONS _____

MOISTURE CONTENT

Date _____ % Date _____ % Date _____ % Date _____ %

DRYING REQUIRED _____ MOISTURE % TO STORAGE _____

QUANTITY STORED _____ WHERE STORED (BIN NO.) _____

TOTAL YIELD THIS FIELD _____ PER ACRE _____

COMMENTS _____

SUMMARY of RETURN OVER CASH COSTS

CASH INPUTS...

_____

_____

_____

_____

_____

_____

TOTAL CASH INPUTS _____

CASH SALES...

_____

_____

_____

_____

_____

_____

TOTAL CASH SALES _____

Farm Gate Printers, Winnipeg - Field Work
Farm Record Book

FIELD WORK RECORD SHEET

FIELD No. _____

YEAR _____

Work Implements Used _____

Date Started _____ Date Completed _____ Hrs. _____

Field and Weather Conditions _____

FALL INPUTS

Fertilizer Formula _____ Rate _____ Total _____ Cost _____

Date Started _____ Date Completed _____

Weed Control Product Used _____ Total _____ Cost _____

Date Started _____ Date Completed _____

Field and Weather Conditions _____

FIRST DAY FIELD WORKED
In Spring of Crop Year Day _____ Month _____

USE OF FIELD THIS YEAR

☐ CROP Name Crop _____

☐ GRASS Name Variety _____

☐ FALLOW Last Rotation _____

Spring Work Implements Used _____

Date Started _____ Date Completed _____ Hrs. _____

Field and Weather Conditions _____

SPRING INPUTS

Fertilizer Formula _____ Rate _____ Total _____ Cost _____

Date Started _____ Date Completed _____

Field and Weather Conditions _____

Pre-Seed Chemicals Product Used _____ Total _____ Cost _____

Date Started _____ Date Completed _____

Field and Weather Conditions _____

Seeding Rate _____ Total _____ Cost _____

Date Started _____ Date Completed _____

Field and Weather Conditions _____

Post-Seed Chemicals _____ Total _____ Cost _____

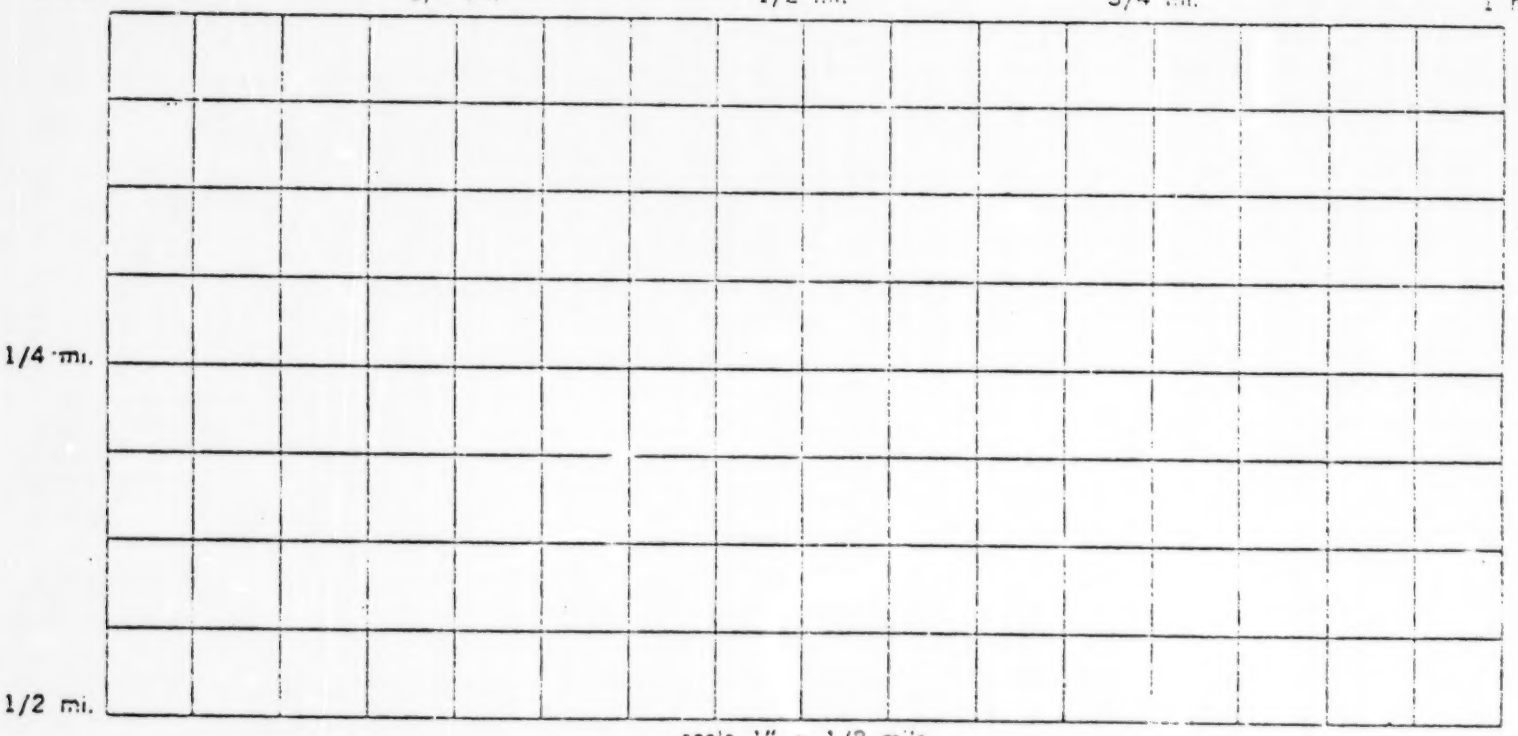
Date Started _____ Date Completed _____

Field and Weather Conditions _____

PRECIPITATION FOR A FULL YEAR

MONTH	RAIN OR SNOW	TOTAL
SEPT.		
OCT.		
NOV.		
DEC.		
JAN.		
FEB.		
MAR.		
APRIL		
MAY		
JUNE		
JULY		
AUG.		
	YEAR TOTAL	

Gate Printers, Winnipeg - Field Work and Farm Record Book



scale 1" = 1/8 mile

CROP _____

SEED VARIETY _____

LAND PREPARATION _____

_____

_____

_____

_____

SEED RATE _____

DATE PLANTED _____

PRE-EMERGE CHEMICAL _____

_____

_____

CULTIVATION ☐ ☐ ☐

INSECT CONTROL _____

Fertilizer as per Soil Test:

Yes ☐ No ☐

28-0-0* _____ lbs.

11-54-0 _____ lbs.

0-0-60 _____ lbs.

lbs. Actual N_2 _____

lbs. Actual P_2O_5 _____

lbs. Actual K_2O _____

POST-EMERGE CHEMICAL _____

_____

_____

HARVEST DATE _____ EST. YIELD _____

*1 gallon 28-0-0 weighs 10.78 lbs

CROPPING PLAN 19___

Location _____

Legal Desc _____

Completed by _____

Date _____

Gibles Farms, Manitoba

FIELD RECORD SHEET

Legal Description _____ Field Size _____ Cult. Acres _____ Field No. _____

CROP DATA

SUBSOIL MOISTURE DEPTH (Inches) _____

PREVIOUS CROP _____

PRESENT CROP _____

CROP VARIETY _____

SEED TREATMENT _____

SOIL TEST RESULTS

REPORT NO. _____

SAMPLE NO. _____

AVAILABLE PLANT NUTRIENTS (LB./2M)	N	P	K

FERTILIZER APPLIED

BEFORE SEEDING KIND	AMOUNT (LB./AC.)
WITH SEED KIND	AMOUNT (LB./AC.)
OTHER FERT. KIND	AMOUNT (LB./AC.)

YIELD DATA

TOTAL YIELD _____

YIELD PER ACRE _____

GRADE OF CROP _____

CAUSE OF DAMAGE _____

ESTIMATED DAMAGE _____

GRAIN STORED IN _____

GRANARY NO. _____

DATE MONTH	DATE DAY	UNIT USED	HRS. WORK	TYPE OF OPERATION	COMMENTS ON FIELD CONDITIONS, OPERATION RESULTS, WEEDS, HAIL, ETC.	RAINFALL (Inches)*
					TOTAL	

* Record rainfall for months of May, June, July, August.
. Record only those rains of 0.25 inches or more.

DAILY LABOR RECORD

Employee_____

Enterprise_____ Month_____ Year_____

DATE	Feeding	Manure removal	Bedding	Animal health	Observation	Feed preparation	Moving animals	Repairs	Improvements	Management and accounting	Downtime	TOTAL
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
TOTAL												

RECORD OF LABOR AND MACHINE USE

Name _____ Week Ending _____

LABOR USE (Hours)	BUSINESS TRAVEL AND MANAGEMENT	IMPROVEMENTS TO LAND, BLDGS, MACH.	CUSTOM WORK	CROP ENTERPRISES			LIVESTOCK ENTERPRISES						TOTAL FOR EACH DAY
				CEREAL CROPS	FORAGE CROPS	SPECIALTY OR ROW CROPS	DAIRY	COW CALF	BEEF FEEDER	HOGS	OTHER (Specify)	OTHER (Specify)	
SUNDAY													
MONDAY													
TUESDAY													
WEDNESDAY													
THURSDAY													
FRIDAY													
SATURDAY													
WEEKLY TOTAL													
CARRIED FWD.													
ACC. TOTAL													

MACHINE USE (Hours or miles)	BUSINESS TRAVEL AND MANAGEMENT	IMPROVEMENTS TO LAND, BLDGS, MACH.	CUSTOM WORK	CROP ENTERPRISES			LIVESTOCK ENTERPRISES						TOTAL FOR EACH DAY
				CEREAL CROPS	FORAGE CROPS	SPECIALTY OR ROW CROPS	DAIRY	COW CALF	BEEF FEEDER	HOGS	OTHER (Specify)	OTHER (Specify)	
CARS													
TRUCKS													
TRACTORS													
SEEDING EQUIP.													
CULT. EQUIP.													
HAY EQUIP.													
HARVEST EQUIP.													
LVSTK. EQUIP.													
OTHER EQUIP.													

MACHINERY RECORD

DATE		DESCRIPTION OF MACHINE	DESCRIPTION OF REPAIR	COST OF REPAIR	REPAIR LABOR COST	TIRES	VALUE OF OWN LABOR FOR REPAIRS	TIME LOST DUE TO BREAKDOWN	FIELD USE		
MONTH	DAY								FIELD NO.	HRS. WORKED	AC. WORKED
			TOTALS								

SERVICE RECORD

Service Record For _____

DATE		MILEAGE OR HOURS	OIL CHANGE	FILTER CHANGE	CHASSIS LUB.	TRANS-MISSION	DIFFER-ENTIAL	WHEEL BEARINGS	AIR CLEANER	BATTERY SERVICE	COOLING SYSTEM	ELECTRICAL SYSTEM	POWER STEERING	HYDRAULIC SYSTEM	OTHER	OTHER	REMARKS (Major Overhauls)
MONTH	DAY																

QUANTITY OF FEED AND SEED USED

GRAIN AND HAY USED FOR FEED AND SEED	CROP ENTERPRISES			LIVESTOCK ENTERPRISES						TOTAL FOR THIS WEEK
	CEREAL CROPS	FORAGE CROPS	SPECIALTY CROPS	DAIRY	COW CALF	BEEF FEEDER	HOGS	OTHER (Specify)	OTHER (Specify)	
WHEAT										
OATS										
BARLEY										
MIXED GRAIN										
GRASS SEED										
OTHER										
OTHER										
CORN										
PEAS										
OTHER										
SILAGE										
GRASS HAY										
LEGUME HAY										
OTHER										
STRAW										
TAME PASTURE (AUM)*										
WILD PASTURE (AUM)*										
LIVESTOCK										
BIRTHS (1)										
(2)										
DEATHS (1)										
(2)										
(3)										

* AUM - is defined as one animal unit kept for one month. To calculate AUM on a weekly basis divide AUM by 4.

* See 1967 Alberta Farm Business Analysis Report, page 19, for Animal Unit standards.

FEED BALANCE SUMMARY _____19___, to _____19___.

Item	A Opening Inventory Amt.	A Value	B Produced Amt.	B Value	C Purchased Amt.	C Value	D Sold Amt.	D Value	E Used for Seed Amt.	E Value	F Fed to Livestock: Sheep Amt.	F Value	G Fed to Livestock: Other Livestock Amt.	G Value	H Closing Inventory Amt.	H Value
Wheat																
Oats																
Barley																
Mixed Grain																
Other Grains																
Prepared Rations																
Screenings																
Tame Hay																
Wild Hay																
Silage																
Straw																
Chaff																
TOTAL	XXX		XXX		XXX		XXX		XXX		XXX		XXX		XXX	

For Each Feed Balance Amounts:
i.e. balance each line [A] + [B] + [C] Must Equal [D] + [D] + [F] + [G] + [H]

NOTE: If this does not check, some feeds have been overlooked, stolen or appraised incorrectly.

Gestation Table of the Cow

Date Bred	283 Days Date Due	Date Bred	283 Days Date Due	Date Bred	283 Days Date Due	Date Bred	283 Days Date Due
Jan. 1	Oct. 11	Apr. 1	Jan. 9	July 5	Apr. 14	Oct. 3	July 13
Jan. 6	Oct. 16	Apr. 6	Jan. 14	July 10	Apr. 19	Oct. 8	July 18
Jan. 11	Oct. 21	Apr. 11	Jan. 19	July 15	Apr. 24	Oct. 13	July 23
Jan. 16	Oct. 26	Apr. 16	Jan. 24	July 20	Apr. 29	Oct. 18	July 28
Jan. 21	Oct. 31	Apr. 21	Jan. 29	July 25	May 4	Oct. 23	Aug. 2
Jan. 26	Nov. 5	Apr. 26	Feb. 3	July 30	May 9	Oct. 28	Aug. 7
Jan. 31	Nov. 10	May 1	Feb. 8	Aug. 4	May 14	Nov. 2	Aug. 12
Feb. 5	Nov. 15	May 6	Feb. 13	Aug. 9	May 19	Nov. 7	Aug. 17
Feb. 10	Nov. 20	May 11	Feb. 18	Aug. 14	May 24	Nov. 12	Aug. 22
Feb. 15	Nov. 25	May 16	Feb. 23	Aug. 19	May 29	Nov. 17	Aug. 27
Feb. 20	Nov. 30	May 21	Feb. 28	Aug. 24	June 3	Nov. 22	Sept. 1
Feb. 25	Dec. 5	May 26	Mar. 5	Aug. 29	June 8	Nov. 27	Sept. 6
Mar. 2	Dec. 10	May 31	Mar. 10	Sept. 3	June 13	Dec. 2	Sept. 11
Mar. 7	Dec. 15	June 5	Mar. 15	Sept. 8	June 18	Dec. 7	Sept. 16
Mar. 12	Dec. 20	June 10	Mar. 20	Sept. 13	June 23	Dec. 12	Sept. 21
Mar. 17	Dec. 25	June 15	Mar. 25	Sept. 18	June 28	Dec. 17	Sept. 26
Mar. 22	Dec. 30	June 20	Mar. 30	Sept. 23	July 3	Dec. 22	Oct. 1
Mar. 27	Jan. 4	June 25	Apr. 4	Sept. 28	July 8	Dec. 27	Oct. 6
		June 30	Apr. 9				

This table is based on 283 days--the normal gestation time for Charolais, Angus, Hereford and Simmental. Bull Calves are carried about one day longer than Heifer Calves. Twins are usually born a week earlier than single calves.

MISCELLANEOUS DATA ON FARM ANIMALS					
	Dog	Cow	Sheep	Horse	Pig
Normal temperature	100.8	101.4	103.4	100.4	102.2
Pulse rate	90-100	45-50	70-80	36-40	70-80
Respiration	15-20	12-30	12-20	8-16	10-15
Estral cycle	6 months	21 days	17 days	22 days	21 days
Duration of estrus	1 week	17 hrs.	2 days	6-7 days	3 days
Time of ovulation	1st or 2nd day of estrus	1st day after estrus	1st or 2nd day after estrus	End of estrus	2nd day of estrus
Period of gestation	62 days	282 days	150 days	340 days	115 days

Incubation Periods:			
Hen	21 days	Peafowl	28
Duck	28	Pigeon	16 - 20
Duck (Muscovy)	35 - 37		
Goose	30 - 34		
Turkey	28		
Guinea	26 - 28		
Pheasant	22 - 24		

HOW TO CONVERT BUSHELS TO TONNES CONVERSION TABLE BASED ON STATUTORY WEIGHTS OF GRAINS				
	Tonnes			
Bushels	Wheat	Barley	Oats	Corn
10	0.27	0.22	0.15	0.25
20	0.54	0.44	0.31	0.51
30	0.81	0.65	0.46	0.76
40	1.09	0.87	0.62	1.02
50	1.36	1.09	0.77	1.27
60	1.63	1.31	0.92	1.52
70	1.90	1.52	1.08	1.78
80	2.18	1.74	1.23	2.03
90	2.45	1.96	1.39	2.29
100	2.72	2.18	1.54	2.54
200	5.44	4.35	3.08	5.08
300	8.16	6.53	4.63	7.62
400	10.88	8.71	6.17	10.16
500	13.60	10.88	7.71	12.70
600	16.33	13.06	9.25	15.24
700	19.05	15.24	10.80	17.78
800	21.77	17.42	12.34	20.32
900	24.49	19.59	13.88	22.86
1000	27.22	21.77	15.42	25.40
2000	54.43	43.54	30.84	50.80
3000	81.65	65.32	46.27	76.20

WEIGHT OF MILK CREAM

An Imperial gallon of milk weighs 10.32 pounds; cream, 10 pounds; 38.7 quarts of milk weigh 100 pounds.

NUMBER OF POUNDS TO THE BUSHEL*			
Alfalfa Seed	60	Crested Wheat Grass	22
Apples (Green)	48	Fescue, Meadow	22
Apples (Dried)	24	Fescue (Other Varieties)	14
Barley	48	Flax Seed	56
Beans (White)	60	Oats	34
Beans (Castor)	46	Onions	57
Beans (Soy)	60	Orchard Grass Seed	14
Bluegrass Seed	14	Peas (Dried)	60
Bran	20	Potatoes	60
Brome Grass	14	Potatoes (Sweet)	50
Buckwheat	48	Red Top Seed	14
Clover (Burr)	10	Rye	56
Clover Seed	60	Timothy Seed	45
Corn (Shelled)	56	Tomatoes	50
Corn (in ear)	70	Turnips	55
Coal, Hard	80	Wheat	60
Coke	40		

*Approximate - Legal Weights may vary.

Table 2. INFORMATION ON SOME FERTILIZERS

Name of Fertilizer	Guaranteed Analysis N% (Nitrogen)	P_2O_5% (Phosphate)	K_2O% (Potash)	Sulphur Content %
Anhydrous ammonia	82	0	0	0
Urea-Ammonium Sulphate	34	0	0	11
Ammonium nitrate	34	0	0	0
Ammonium sulphate	21	0	0	24
Urea	45-46	0	0	0
Urea-nitrate solution	28	0	0	0
Ammonium nitrate-phosphate	27	14	0	low
Ammonium nitrate-phosphate	23	23	0	low
Ammonium phosphate-sulphate	16	20	0	14
Ammonium phosphate	11	48	0	low
Complete	10	30	10	5
Complete	14	14	7	14
Complete	8	24	24	3
Farm manure	0.5	0.25	0.5	0.15
Potassium chloride (muriate of potash)	0	0	60	low
Gypsum (calcium sulphate)	—	—	—	18
Sodium sulphate (dry)	—	—	—	22
Sulphur (commercial)	—	—	—	98

VOLUME MEASUREMENTS

For the contents in barrels, multiply the cubic feet by .0375

To Find the Contents of Barrels and Casks in Imperial Gallons:

Rule: - Multiply the square of the mean diameter (in inches) by the depth (in inches) and the product by .002833.

Measuring Grain in a Rectangular Bin

NOTE: That one cubic foot is equal to approximately 0.78 of 1 bushel. The number of bushels of grain in a bin may be determined as follows:

1. Level the grain in the bin.
2. Multiply the length of bin by the width by the depth of grain in feet. This gives the cubic content of the bin.
3. Deduct the cubic contents of any studding inside the dimensions taken.
4. Multiply the results by 0.78. This gives the bushels by measure.
5. Change to bushels by weight by multiplying by the weight of grain per bushel and dividing by the legal weight per bushel.

EXAMPLE:

A bin is 12 feet long, 10 feet wide, and the grain when levelled is 8 feet deep. It has 18-2-inch by 4-inch uprights inside of the bin. The wheat weighs 65 pounds per measured bushel.

$$\frac{(12 \times 10 \times 8)}{12} - \frac{(18 \times 2 \times 4 \times 8)}{12} = 960 - 8 = 952 \text{ cu ft}$$

$$\frac{952 \times 78}{100} = 742.56 \text{ bushels by volume}$$

$$\frac{742.56 \times 65}{60} = 804.44 \text{ bushels by weight}$$

Measuring Grain in a Round Bin

The area of floor may be determined by squaring one-half of the diameter and multiplying by 22/7.

EXAMPLE:

A round bin 12 feet wide contains oats to a depth of 8 feet weighing 40 pounds per bushel.

One half diameter = 6 feet

$$\frac{6 \times 6 \times 22}{7} = 113.14 \text{ square feet}$$

$113.14 \times 8 = 905.12$ cubic feet

$$\frac{905.12 \times 76}{100} = 706 \text{ bushels by volume}$$

$$\frac{40 \times 706}{34} = 830.5 \text{ bushels by weight}$$

Measuring Grain in a Cone-Shaped Pile

1. Determine the circumference at the base by measuring (in feet).
2. Multiply this figure by 7/22 to obtain the diameter.
3. Divide this figure by 2 to determine the radius.
4. Determine by measurement the distance (in feet from the bottom of the pile to the peak = slope.
5. Determine the depth of the pile as follows: Slope squared - radius squared = depth squared. Extract the square root of depth squared = depth.
6. Volume = 1/3 of 22/7 X radius squared X depth.
7. To change from cubic feet to bushels by measure, multiply by 78 and divide by 100.
8. Adjust to bushels by weight as previously explained.

Measuring Hay and Straw in Stacks

The approximate number of tons of hay or straw in a stack may be determined as follows:

1. Estimate the number of cubic feet in the stack.
2. Determine the number of tons in the stack by dividing the number of cubic feet in the stack by the number of cubic feet per ton as follows:

Approximate Hay Capacity for Straight Sidewall Storages, Tons Per Foot of Length:

	Width 32 ft, Height 10 ft	Width 36 ft, Height 12 ft	Width 40 ft, Height 14 ft
Long Hay	0.8	1.1	1.4
Chopped:			
Long	1.0	1.3	1.6
Short	1.5	2.0	2.5
Field-baled:			
Twine	1.6	2.2	2.8
Wire	2.3	3.2	4.2

Approximate Storage-Space Requirements for Feed, Bedding and Materials:

Material	lb /cu ft	cu ft /ton
Loose Hay:		
In shallow mows	3½-4	600-500
In deep mows	4½-5	450-400
Baled Hay:		
Field-baled	8-14	200-250
Ordinary bales	10-15	200-135
Tight bales	12-20	100-175
Chopped Hay:		
Long (2½ in or more)	5½-8	360-250
Short (less than 2½ in)	8-10	250-200
Loose Straw	3⅓-4	600-500
Baled Straw:		
Field bales	6⅔-8	300-250
Tight bales	10-13⅓	200-150
Chopped Straw	6-8	350-250
Small Grain	50-36	55-40
Oats	25-35	80-55
Mixed Feed concentrates	45	44
Wood Shavings, baled	20	100
Lime	65	31
Ground Phosphate	75	27

Measuring Circles:

1. To find the diameter of a circle, multiply the circumference by .31831.
2. To find the circumference of a circle, multiply the diameter by 3.1416.
3. To find the area of a circle, multiply the square of the diameter by .7854.

Calculation of Machine:

Rate of Coverage:--

$$\text{Acres per hour} = \frac{\text{Speed in mph} \times \text{width in inches}}{100}$$

CONVERSION FACTORS FOR METRIC SYSTEM		
Imperial units	Approximate conversion factor	Results in:
LINEAR		
inch	x 25	millimetre (mm)
foot	x 30	centimetre (cm)
yard	x 0.9	metre (m)
mile	x 1.6	kilometre (km)
AREA		
square inch	x 6.5	square centimetre (cm^2)
square foot	x 0.09	square metre (m^2)
acre	x 0.40	hectare (ha)
VOLUME		
cubic inch	x 16	cubic centimetre (cm^3)
cubic foot	x 28	cubic decimetre (dm^3)
cubic yard	x 0.8	cubic metre (m^3)
fluid ounce	x 28	millilitre (ml)
pint	x 0.57	litre (ℓ)
quart	x 1.1	litre (ℓ)
gallon	x 4.5	litre (ℓ)
bushel	x 0.36	hectolitre (hℓ)
WEIGHT		
ounce	x 28	gram (g)
pound	x 0.45	kilogram (kg)
short ton (2000 lb)	x 0.9	tonne (t)
TEMPERATURE		
degree fahrenheit	(° F - 32) x 0.56 (or ° F - 32 x 5/9)	degree Celsius (° C)
PRESSURE		
pounds per square inch	x 6.9	kilopascal (kPa)
POWER		
horsepower	x 746	watt (W)
	x 0.75	kilowatt (kW)
SPEED		
feet per second	x 0.30	metres per second (m/s)
miles per hour	x 1.6	kilometres per hour (km/h)
AGRICULTURE		
bushels per acre	x 0.90	hectolitres per hectare (hℓ/ha)
gallons per acre	x 11.23	litres per hectare (ℓ/ha)
quarts per acre	x 2.8	litres per hectare (ℓ/ha)
pints per acre	x 1.4	litres per hectare (ℓ/ha)
fluid ounces per acre	x 70	millilitres per hectare (mℓ/ha)
tons per acre	x 2.24	tonnes per hectare (t/ha)
pounds per acre	x 1.12	kilograms per hectare (kg/ha)
ounces per acre	x 70	grams per hectare (g/ha)
plants per acre	x 2.47	plants per hectare (plants/ha)

POOR

QUALITY

ORIGINAL